SAMSUNG

Color Laser Printer

CLP-610ND
CLP-660N/660ND

CLP-610ND/XAA

Basic Model : CLP-610ND, 660ND

SERVICE *Manual*

Samsung Color Laser Printer

The keynote of Product

High SMB/Easy of Use Tandem CLBP

- Emulation : CLP-610ND(SPL-C),
  CLP-660, 660N(PostScript 3, PCL6)

- Speed : CLP-610ND(20/20 ppm),
  CLP-660, 660N(24/24 ppm)

- Resolution : CLP-610ND(1,200 x 600 dpi),
  CLP-660N, 660ND(1,200 x 600 dpi)

- CPU : CLP-610ND(300 MHz),
  CLP-660N, 660ND(533 MHz)

- Interface : N/W

- Memory : CLP-610ND / 64 MB,
  CLP-660N, 660ND/128 MB (Max. 640 MB)

- Duplex (Option)

- 250 CST, 1 Manual, 100 MP

- Toner Cartridge: 2.5K/2K (Std.), 5.5K/5K (High)

- Printer Life: Color 200K / Mono 200K pages

SAMSUNG

ELECTRONICS

VERSION NO. : 1.00   **CODE** : 0610-C0XAA

Contents

Continued

4. Alignment & Troubleshooting

5. Exploded Views & Parts List

Continued

6. System Diagram

7. Reference Information

1. Precautions

In order to prevent accidents and to prevent damage to the equipment please read the precautions listed below carefully before servicing the printer and follow them closely.

1.1 Safety Warning

(1) Only to be serviced by appropriately qualified service engineers.
High voltages and lasers inside this product are dangerous. This printer should only be serviced by a suitably trained and qualified service engineer.

(2) Use only Samsung replacement parts
There are no user serviceable parts inside the printer. Do not make any unauthorized changes or additions to the printer, these could cause the printer to malfunction and create electric shock or fire hazards.

(3) Laser Safety Statement
The Printer is certified in the U.S. to conform to the requirements of DHHS 21 CFR, chapter 1 Subchapter J for Class 1(1) laser products, and elsewhere, it is certified as a Class I laser product conforming to the requirements of IEC 825. Class I laser products are not considered to be hazardous. The laser system and printer are designed so there is never any human access to laser radiation above a Class I level during normal operation, user maintenance, or prescribed service condition.

Warning >> Never operate or service the printer with the protective cover removed from Laser/Scanner assembly. The reflected beam, although invisible, can damage your eyes. When using this product, these basic safety pre-cautions should always be followed to reduce risk of fire, electric shock, and injury to persons.

CAUTION - INVISIBLE LASER RADIATION WHEN THIS COVER OPEN. DO NOT OPEN THIS COVER.

VORSICHT - UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.

ATTENTION - RAYONNEMENT LASER INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.

ATTENZIONE - RADIAZIONE LASER INVISIBILE IN CASO DI APERTURA. EVITARE L'ESPOSIZIONE AL FASCIO.

PRECAUCION - RADIACION LASER IVISIBLE CUANDO SE ABRE. EVITAR EXPONERSE AL RAYO.

ADVARSEL. - USYNLIG LASERSTRÅLNING VED ÅBNING, NÅR SIKKERHEDSBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLNING.

ADVARSEL. - USYNLIG LASERSTRÅLNING NÅR DEKSEL ÅPNES. STIRR IKKE INN I STRÅLEN. UNNGÅ EKSPONERING FOR STRÅLEN.

VARNING - OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN. STRÅLEN ÄR FARLIG.

VARO! - AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASER-SÄTEILYLLE ÄLÄ KATSO SÄTEESEEN.

注 意 - 严禁渴开此盖, 以免激光泄露灼伤

주 의 - 이 덮개를 열면 레이저광에 노출될 수 있으므로 주의하십시오.

1.2 Caution for safety

1.2.1 Toxic material

This product contains toxic materials that could cause illness if ingested.

(1) If the LCD control panel is damaged it is possible for the liquid inside to leak. This liquid is toxic. Contact with the skin should be avoided, wash any splashes from eyes or skin immediately and contact your doctor. If the liquid gets into the mouth or is swallowed see a doctor immediately.

(2) Please keep toner cartridges away from children. The toner powder contained in the toner cartridge may be harmful and if swallowed you should contact a doctor.

1.2.2 Electric Shock and Fire Safety Precautions

Failure to follow the following instructions could cause electric shock or potentially cause a fire.

(1) Use only the correct voltage, failure to do so could damage the printer and potentially cause a fire or electric shock.

(2) Use only the power cable supplied with the printer. Use of an incorrectly specified cable could cause the cable to overheat and potentially cause a fire.

(3) Do not overload the power socket, this could lead to overheating of the cables inside the wall and could lead to a fire.

(4) Do not allow water or other liquids to spill into the printer, this can cause electric shock. Do not allow paper clips, pins or other foreign objects to fall into the printer these could cause a short circuit leading to an electric shock or fire hazard..

(5) Never touch the plugs on either end of the power cable with wet hands, this can cause electric shock. When servicing the printer remove the power plug from the wall socket.

(6) Use caution when inserting or removing the power connector. The power connector must be inserted completely otherwise a poor contact could cause overheating possibly leading to a fire. When removing the power connector grip it firmly and pull.

(7) Take care of the power cable. Do not allow it to become twisted, bent sharply round corners or otherwise damaged. Do not place objects on top of the power cable. If the power cable is damaged it could overheat and cause a fire or exposed cables could cause an electric shock. Replace a damaged power cable immediately, do not reuse or repair the damaged cable. Some chemicals can attack the coating on the power cable, weakening the cover or exposing cables causing fire and shock risks.

(8) Ensure that the power sockets and plugs are not cracked or broken in any way. Any such defects should be repaired immediately. Take care not to cut or damage the power cable or plugs when moving the machine.

(9) Use caution during thunder or lightening storms. Samsung recommend that this machine be disconnected from the power source when such weather conditions are expected. Do not touch the machine or the power cord if it is still connected to the wall socket in these weather conditions.

(10) Avoid damp or dusty areas, install the printer in a clean well ventilated location. Do not position the machine near a humidifier. Damp and dust build up inside the machine can lead to overheating and cause a fire.

(11) Do not position the printer in direct sunlight. This will cause the temperature inside the printer to rise possibly leading to the printer failing to work properly and in extreme conditions could lead to a fire.

(12) Do not insert any metal objects into the machine through the ventilator fan or other part of the casing, it could make contact with a high voltage conductor inside the machine and cause an electric shock.

1.2.3 Handling Precautions

The following instructions are for your own personal safety, to avoid injury and so as not to damage the printer

(1) Ensure the printer is installed on a level surface, capable of supporting its weight. Failure to do so could cause the printer to tip or fall.

(2) The printer contains many rollers, gears and fans. Take great care to ensure that you do not catch your fingers, hair or clothing in any of these rotating devices.

(3) Do not place any small metal objects, containers of water, chemicals or other liquids close to the printer which if spilled could get into the machine and cause damage or a shock or fire hazard.

(4) Do not install the machine in areas with high dust or moisture levels, beside on open window or close to a humidifier or heater. Damage could be caused to the printer in such areas.

(5) Do not place candles, burning cigarettes, etc. on the printer, these could cause a fire.

1.2.4 Assembly / Disassembly Precautions

Replace parts carefully, always use Samsung parts. Take care to note the exact location of parts and also

cable routing before dismantling any part of the machine. Ensure all parts and cables are replaced correctly.

Please carry out the following procedures before dismantling the printer or replacing any parts.

(1) Check the contents of the machine memory and make a note of any user settings. These will be erased if the mainboard is replaced.

(2) Ensure that power is disconnected before servicing or replacing any electrical parts.

(3) Disconnect printer interface cables and power cables.

(4) Only use approved spare parts. Ensure that part number, product name, any voltage, current or temperature rating are correct.

(5) When removing or re-fitting any parts do not use excessive force, especially when fitting screws into plastic.

(6) Take care not to drop any small parts into the machine.

(7) Handling of the OPC Drum

- The OPC Drum can be irreparably damaged if it exposed to light.
Take care not to expose the OPC Drum either to direct sunlight or to fluorescent or incandescent room lighting. Exposure for as little as 5 mins can damage the surface's photoconductive properties and will result in print quality degradation. Take extra care when servicing the printer. Remove the OPC Drum and store it in a black bag or other lightproof container. Take care when working with the covers(especially the top cover) open as light is admitted to the OPC area and can damage the OPC Drum.

- Take care not to scratch the green surface of OPC Drum Unit.
If the green surface of the Drum Cartridge is scratched or touched the print quality will be compromised.

1.2.5 Disregarding this warning may cause bodily injury

(1) Be careful with the high temperature part.
The fuser unit works at a high temperature. Use caution when working on the printer. Wait for the fuser to cool down before disassembly.

(2) Do not put finger or hair into the rotating parts.
When operating a printer, do not put hand or hair into the rotating parts (Paper feeding entrance, motor, fan, etc.). If do, you can get harm.

(3) When you move the printer.
This printer weighs 25.6 Kg(56.44 lbs) including with consumables. Use safe lifting and handling techniques. Back injury could be caused if you do not lift carefully.
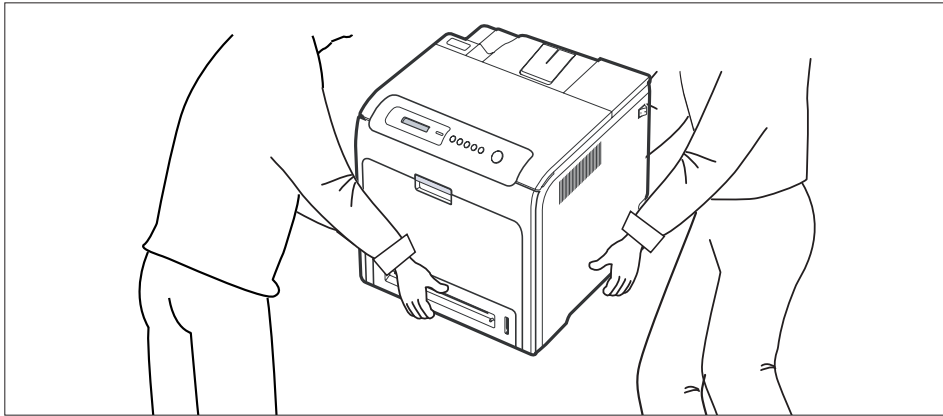
(4) Ensure the printer is installed safely.
The printer weighs 25.6 Kg(56.44 lbs), ensure the printer is installed on a level surface, capable of supporting its weight. Failure to do so could cause the printer to tip or fall possibly causing personal injury or damaging the printer.

(5) Do not install the printer on a sloping or unstable surface. After installation, double check that the printer is stable.

1.3 ESD Precautions

Certain semiconductor devices can be easily damaged by static electricity. Such components are commonly called "Electrostatically Sensitive (ES) Devices", or ESDs. Examples of typical ESDs are: integrated circuits, some field effect transistors, and semiconductor "chip" components.

The techniques outlined below should be followed to help reduce the incidence of component damage caused by static electricity.

Caution >>Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

1. Immediately before handling a semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, employ a commercially available wrist strap device, which should be removed for your personal safety reasons prior to applying power to the unit under test.

2. After removing an electrical assembly equipped with ESDs, place the assembly on a conductive surface, such as aluminum or copper foil, or conductive foam, to prevent electrostatic charge buildup in the vicinity of the assembly.

3. Use only a grounded tip soldering iron to solder or desolder ESDs.

4. Use only an "anti-static" solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESDs.

5. Do not use Freon-propelled chemicals. When sprayed, these can generate electrical charges sufficient to damage ESDs.

6. Do not remove a replacement ESD from its protective packaging until immediately before installing it. Most replacement ESDs are packaged with all leads shorted together by conductive foam, aluminum foil, or a comparable conductive material.

7. Immediately before removing the protective shorting material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.

8. Maintain continuous electrical contact between the ESD and the assembly into which it will be installed, until completely plugged or soldered into the circuit.

9. Minimize bodily motions when handling unpackaged replacement ESDs. Normal motions, such as the brushing together of clothing fabric and lifting one's foot from a carpeted floor, can generate static electricity sufficient to damage an ESD.

1.4 Super Capacitor or Lithium Battery Precautions

1. Exercise caution when replacing a super capacitor or Lithium battery. There could be a danger of explosion and subsequent operator injury and/or equipment damage if incorrectly installed.

2. Be sure to replace the battery with the same or equivalent type recommended by the manufacturer.

3. Super capacitor or Lithium batteries contain toxic substances and should not be opened, crushed, or burned for disposal.

4. Dispose of used batteries according to the manufacture's instructions.

2. Product specification and feature

2.1 Product Specifications

2.1.1 Product Overview

Concept	Low CPP/Easy of Use Tandem CLBP
Target	SMB (Small workgroup/biz)

< CLP-610 Series >

· 20/20 ppm
· Max 1,200 x 1,200 dpi effective output
· CHORUS3(SOC)
· GDI, N/W
· 250 CST, 100 MP
· Duplex
· 2.5K/2K (Std.)
· 5.5K/5K (High)

< CLP-660 Series >

· 24/24 ppm
· Max 1,200 x 1,200 dpi effective output
· 533 MHz
· PCL6/PS3, N/W
· 250 CST, 100 MP
· Duplex
· 2.5K/2K (Std.)
· 5.5K/5K (High)

2.1.2 Specifications

• Product Specifications are subject to change without notice. See below for product specifications.

2.1.2.1 General Print Engine

Item		CLP-610ND	CLP-660N/660ND
Engine Speed	Simplex	B&W : Up to 20 ppm in A4 (21 ppm in Letter) Color : Up to 20 ppm in A4 (21 ppm in Letter)	B&W : Up to 24 ppm in A4 (25 ppm in Letter) Color : Up to 24 ppm in A4 (25 ppm in Letter)
	Duplex	B&W : Up to 10ipm in A4 (10 ipm in Letter) Color : Up to 10ipm in A4 (10 ipm in Letter)	CLP-660N : Manual CLP-660ND : B&W : Up to 12 ipm in A4 (12ipm in Letter) Color : Up to 12 ipm in A4 (12ipm in Letter)
Warmup time		Less than 40 sec	Less than 30 sec
FPOT (B&W)	From Ready	Less than 20 sec	Less than 14 sec
	From Idle	Less than 60 sec	Less than 44 sec
	From Coldboot	Less than 60 sec	Less than 44 sec
FPOT (Color)	From Ready	Less than 20 sec	Less than 14 sec
	From Idle	Less than 60 sec	Less than 44 sec
	From Coldboot	Less than 60 sec	Less than 44 sec
Resolution	Optical	600 x 600 dpi	600 x 600 dpi
	Support	Best : up to 2,400 x 600 effective output Normal : up to 1,200 x 600 dpi Draft : up to 600 x 600 dpi	■ PCL 6, SPL-C Best : up to 2,400 x 600 effective output Normal : up to 1,200 x 600 dpi Draft : up to 600 x 600 dpi ■ PostScript 3 Best : up to 1,200 x 600 effective output Normal : up to 600 x 600 dpi

2.1.2.2 Controller & S/W

Item		CLP-610ND	CLP-660N/660ND
MPU		Samsung CHORUS3 360 MHz	MIPS 533MHz + Samsung SPGPxm
Memory	Std.	128 MB	128 MB
	Max.	384 MB	640 MB
Memory Expansion		1 slot	1 Slot
Printer Languages		SPL-C (Samsung Printer Language Color), PCL6	PostScript 3, PCL6, SPL-C
Fonts		45 scalable and 1 bitmap PCL	45 scalable and 1 bitmap PCL and 136 PS
Driver	Supporting OS	Windows 98/Me/2000/XP/2003/Vista	Windows 98/Me/2000/XP/2003/Vista
		Various Linux including Red Hat 8.0~9.0, Mandrake 9.2~10.1, SuSE 8.2~9.2 and Fedora Core 1~4	Various Linux including Red Hat 8.0~9.0, Mandrake 9.2~10.1, SuSE 8.2~9.2 and Fedora Core 1~4
		Mac OS 10.3~10.4 and Universal Mac	Mac OS 10.3~10.4 and Universal Mac
	Default Driver	- SPL-C (Samsung Printer Language Color) - including Mono Only Driver	- SPL-C (Samsung Printer Language Color) - including Mono Only Driver
	Driver feature	Watermark Overlay N-up printing Poster printing Duplex Quality (Best/Normal/Draft) Color mode (Color, Gray scale) Copies Setting (Window Only) Color spec. application adaptive color matiching Support Device color Service homepage connection	Watermark Overlay N-up printing Poster printing Duplex Quality (Best/Normal/Draft) Color mode (Color, Gray scale) Copies Setting (Window Only) Color spec. application adaptive color matiching Support Device color Service homepage connection
	WHQL	Windows 2000/XP/2003/Vista	Windows 2000/XP/2003/Vista
	Language Localization	Korean, English, French, German, Italian, Spanish, Russian, Dutch, B.Portuguese, E.Portuguese, Finish, Swedish, Norwegian, Danish, S.Chinese, T.Chinese, Polish, Hungarian, Czech	Korean, English, French, German, Italian, Spanish, Russian, Dutch, B.Portuguese, E.Portuguese, Finish, Swedish, Norwegian, Danish, S.Chinese, T.Chinese, Polish, Hungarian, Czech
Application	PSU	USB	USB
	Smart Panel	Yes (USB / Network, Install Default)	Yes (USB / Network, Install Default)
	Network Management	Set IP, Samsung Web Admin Service 4.0 (SWAS 4.0)(Linux, SWAS: Iexplorer 5.0 or higher, Mac: not supported)	Set IP, Samsung Web Admin Service 4.0 (SWAS 4.0)(Linux, SWAS: Iexplorer 5.0 or higher, Mac: not supported)
	SmarThru4	N/A	N/A

2.1.2.3 Interface

Item		CLP-610ND	CLP-660N/660ND
Interface	Parallel	N/A	N/A
	USB	USB 2.0	USB 2.0
	Network	Ethernet 10/100 Base TX	Ethernet 10/100 Base TX
	Wireless	N/A	N/A
Network Interface	Protocol	TCP/IP,SNMPv2/v3,IPP, HTTP1.1	TCP/IP,SNMPv2/v3,IPP, HTTP1.1
	Network OS	Windows 2000/XP(32/64bit)/2003/ Server(32/64bit)/Vista NetWare 5.x, 6.x Mac OS 10.3~10.4 - TCP/IP Only Various Linux OS including Red Hat 8.0~9.0, Fedora Core 1~4, Mandrake 9.2~10.1, and SuSE 8.2~9.2HP-UX, Solaris, SunOS, SCO UNIX	Windows 2000/XP(32/64bit)/2003/ Server(32/64bit)/Vista NetWare 5.x, 6.x Mac OS 10.3~10.4 - TCP/IP Only Various Linux OS including Red Hat 8.0~9.0, Fedora Core 1~4, Mandrake 9.2~10.1, and SuSE 8.2~9.2HP-UX, Solaris, SunOS, SCO UNIX
User Interface	LCD & Button	LCD, 6 key	LCD, 6 key
	LED	1 LED for status (Green/Red)	1 LED for status (Green/Red)

2.1.2.4 Paper Handling

Item		CLP-610ND	CLP-660N/660ND
Standard Capa.		250-sheet Cassette Tray, MP 100	250-sheet Cassette Tray, 100 MP
Max. Capa.		850 sheets @ 75g/$_{m^2}$	850 sheets @ 75g/$_{m^2}$
Printing	Max. Size	216 x 356mm (8.5" x 14")	216 x 356mm (8.5" x 14")
	Min. Size	76 x 127 mm (3" x 5")	76 x 127 mm (3" x 5")
	Margin(T/B/L/R)	4 mm, 4 mm, 4 mm, 4 mm	4 mm, 4 mm, 4 mm, 4 mm
Multi-purpose tray			
Capacity		100 sheets @ 75g/$_{m^2}$	100 sheets @ 75g/$_{m^2}$
Media sizes		216 x 356mm (8.5" x 14")	216 x 356mm (8.5" x 14")
Media type		Printer Default, Plain Paper, Thick, Thin, Cotton, Archive Paper ,Bond, Card Stock, Labels, Preprinted, Color Paper, Envelope, Recycled	Printer Default, Plain Paper, Thick, Thin, Cotton, Archive Paper ,Bond, Card Stock, Labels, Preprinted, Color Paper, Envelope, Recycled
Media weight		16~43lb (60 to 163g/$_{m^2}$)	16~43lb (60 to 163g/$_{m^2}$)
Sensing		Empty sensingNo size sensor	Empty sensingNo size sensor
Standard Cassette Tray			
Capacity		250 sheets @ 75g/$_{m^2}$	250 sheets @ 75g/$_{m^2}$
Media sizes		76 x 127 mm (3" x 5") ~ 216 x 356mm (8.5" x 14")	76 x 127 mm (3" x 5") ~ 216 x 356mm (8.5" x 14")
Media types		Plain paper	Plain paper
Media weight		16~28lb (60 to 105g/$_{m^2}$)	16~28lb (60 to 105g/$_{m^2}$)
Size sensor		N/A	N/A
User Interface		Indicator	Indicator
Sensing		Paper empty sensor	Paper empty sensor

Item	CLP-610ND		CLP-660N/660ND
Optional Cassette Tray			
Capacity	500 sheets @ 75g/ m²		500 sheets @ 75g/ m²
Media sizes	A5 148.5 x210mm ~ Legal 216 x 356mm (8.5" x 14")		A5 148.5 x210mm ~ Legal 216 x 356mm (8.5" x 14")
Media types	Plain paper		Plain paper
Media weight	16~28lb (60 to 105g/ m²)		16~28lb (60 to 105g/ m²)
Size sensor	N/A		N/A
User Interface	Indicator		Indicator
Sensing	Empty sensing		Empty sensing
Output Stacking			
Capacity	FaceUp	N/A	N/A
	FaceDown	200 sheets @ 75g/ m²	200 sheets @ 75g/ m²
Output Full sensing	N/A		N/A
Duplex			
Supporting	Std.		CLP-660N : Optional (CLP-U660A Export only) CLP-660ND : Std.
Throughput	N/A		N/A
Media sizes	A4, Letter, Legal, Oficio, Folio		A4, Letter, Legal, Oficio, Folio
Media types	Palin paper only		CLP-660N : N/A CLP-660ND : Plain paper only
Media weight	20~24lb (75 to 90g/ m²)		CLP-660N : N/A CLP-660ND : 20~24lb (75 to 90g/ m²)

2.1.2.5 CRU

Item		CLP-610ND	CLP-660N/660ND
No. of CRUs		■ Standard Yield K toner cartridge: CLP-K660A C toner cartridge: CLP-C660A M toner cartridge: CLP-M660A Y toner cartridge: CLP-Y660A ■ High Yield K toner cartridge: CLP-K660B C toner cartridge: CLP-C660B M toner cartridge: CLP-M660B Y toner cartridge: CLP-Y660B ■ Transfer Belt 1) Korea 　PTB : CLP-T660B 1) Export 　PTB : CLP-T660B	■ Standard Yield K toner cartridge: CLP-K660A C toner cartridge: CLP-C660A M toner cartridge: CLP-M660A Y toner cartridge: CLP-Y660A ■ High Yield K toner cartridge: CLP-K660B C toner cartridge: CLP-C660B M toner cartridge: CLP-M660B Y toner cartridge: CLP-Y660B ■ Transfer Belt 1) Korea 　PTB : CLP-T660A 　PTB : CLP-T660B (660 series) 1) Export 　PTB : CLP-T660B
Toner	Black	■ Standard Yield Average Continuous Black Cartridge Yield: 2,500* standard pages ■ High Yield Average Continuous Black Cartridge Yield: 5,500* standard pages * Declared yield value in accordance with ISO/IEC 19798 (Ships with 2,500 pages Standard Toner Cartridge)	■ Standard Yield Average Continuous Black Cartridge Yield: 2,500* standard pages ■ High Yield Average Continuous Black Cartridge Yield: 5,500* standard pages * Declared yield value in accordance with ISO/IEC 19798 (Ships with 2,500 pages Standard Toner Cartridge)
	Color	■ Standard Yield Average Continuous Cyan Cartridge Yield: 2,000* standard pages Average Continuous Magenta Cartridge Yield: 2,000* standard pages Average Continuous Yellow Cartridge Yield: 2,000* standard pages ■ High Yield Average Continuous Cyan Cartridge Yield: 5,000* standard pages Average Continuous Magenta Cartridge Yield: 5,000* standard pages Average Continuous Yellow Cartridge Yield: 5,000* standard pages * Declared yield value in accordance with ISO/IEC 19798 (Ships with 2,000 pages Standard Toner Cartridge)	■ Standard Yield Average Continuous Cyan Cartridge Yield: 2,000* standard pages Average Continuous Magenta Cartridge Yield: 2,000* standard pages Average Continuous Yellow Cartridge Yield: 2,000* standard pages ■ High Yield Average Continuous Cyan Cartridge Yield: 5,000* standard pages Average Continuous Magenta Cartridge Yield: 5,000* standard pages Average Continuous Yellow Cartridge Yield: 5,000* standard pages * Declared yield value in accordance with ISO/IEC 19798 (Ships with 2,000 pages Standard Toner Cartridge)
	Key	Unique, Electronic key(S-CRUM)	Unique, Electronic key(S-CRUM)
	Life detect	Life detect Sensor(None), Traced via software 90% exhausted: Low message 100% exhausted: Empty message	Life detect Sensor(None), Traced via software 90% exhausted: Low message 100% exhausted: Empty message
	Replace method	CRUM for appropriate installation of each cartridge3 step for install/replacing	CRUM for appropriate installation of each cartridge3 step for install/replacing
Paper Transfer Belt	Yield	50K	50K
	Key	Unique, Electronic key(CRUM)	Unique, Electronic key(CRUM)
	Sensor	None, that would be traced via software	None, that would be traced via software
	Replace method	2 steps for install/replacing	2 steps for install/replacing

2.1.2.6 FRU

Item	CLP-610ND	CLP-660N/660ND
Fuser	100K	100K
Pick-up Roller	70k	70k
Friction pad	70k	70k

2.1.2.7 Reliability & Service

Item		CLP-610ND	CLP-660N/660ND
Printing Volume(AMPV)		640 page (B&W : 192 page, Color : 448 pages)	1190 page (B&W : 476 page, Color : 714 pages)
Max Monthly Duty		65,000 pages	80,000 pages
MPBF		58,000 pages	58,000 pages
MTTR		<30 min.	<30 min.
SET Life Cycle		200,000 image or 5 years whitchever comes first	200,000 image or 5 years whitchever comes first
Real-time Clock		None	None
System-record		Total page count (color/mono) Fuser life Transfer belt life Toner Life(CMYK) Tray pickup-Roller life	Total page count (color/mono) Fuser life Transfer belt life Toner Life(CMYK) Tray pickup-Roller life
Test Print		Configuration Sheet Menu Map Sheet Demo Sheet	Configuration Sheet Menu Map Sheet Demo Sheet
RDC	Comm. Mode	N/A	N/A
	Operation	N/A	N/A
Temperature	Operating	15~32.5 (59~90.5)	15~32.5 (59~90.5)
	Storage	-20~40(-4~104)	-20~40(-4~104)
Humidity	Operating	10~80RH	10~80RH
	Storage	0~95RH	0~95RH

2.1.2.8 Environment

Item		CLP-610ND	CLP-660N/660ND
Acoustic Noise Level(Sound Power/Pressure)	Printing	Less than 51 dBA	Less than 53 dBA
	Standby	Less than 29 dBA	Less than 29 dBA
	Sleep	Background noise level	Background noise level
Input Voltages		110-127 VAC, 50/60Hz	110-127 VAC, 50/60Hz
		220-240 VAC,50/60Hz	220-240 VAC,50/60Hz
		Power Switch	Power Switch
Power Consumption	Ready	Less than 120W	Less than 120W
	AVG.	Less than 450W, China 550W	Less than 600W, China 700W
	Max/Peak	Less than 1400W	Less than 1900W
	Sleep	Less than 17W	Less than 17W
Emission	Ozone	< 2.0 mg/hr	< 2.0 mg/hr
	Dust	< 4 mg/hr	< 4 mg/hr
	Styrene	<1.0mg/hr (mono mode), <1.8mg/hr (color mode)	<1.0mg/hr (mono mode), <1.8mg/hr (color mode)
	VOC	<10mg/hr (mono mode), <18mg/hr (color mode)	<10mg/hr (mono mode), <18mg/hr (color mode)
Dimension (W x D x H)	Set	432 x 432 x 426 mm	432 x 432 x 426 mm
	Set Packing	613 x 622 x 635(24.1 x 24.5 x 25)	613 x 622 x 635(24.1 x 24.5 x 25)
	Consumables Packing	620 X 430 X 325 mm (24.4" x 16.9" x 12.8")	620 X 430 X 325 mm (24.4" x 16.9" x 12.8")
Weight	Set (with consumables)	25.6 kg	25.6 kg
	Set Packing	30.6 kg	30.6 kg
	Consumables	6.82Kg	6.82Kg
	Consumables Packing	8.3 Kg	8.3 Kg

2.1.2.9 Packing & Accessory

Item		CLP-610ND	CLP-660N/660ND
In-Box		Machine K/C/M/Y Toner (K:2.5K , C/M/Y:2K) Power cord USB cable (China, Korea, CIS, India) Set-up CD QIG(Quick installation Guide sheet) Warranty book Manual Book: Domestic Only	Machine K/C/M/Y Toner (K:2.5K , C/M/Y:2K) Power cord USB cable (China, Korea, CIS, India) Set-up CD QIG(Quick installation Guide sheet) Warranty book Manual Book: Domestic Only

2.1.2.10 Options

Item	CLP-610ND	CLP-660N/660ND
Memory	128/256MB	128/256/512 MB
Second Cassette	500- sheet Cassette	500- sheet Cassette
PostScript	N/A	Built-in
Network	Built-in	Built-in
Wireless Network	N/A	N/A
Hard Disk	N/A	N/A
Duplex Unit	Built-in	CLP-660N : Optional (CLP-U660A Export only) CLP-660ND : Built-in

2.1.3 Maintenance List (CRU & FRU)

CRU	Modes	Life (Expected Average based on AMPV usage ratio)				Max. Life	
		Expected Life		Total Image	TotalPage	Color only (page)	Mono only(page)
		pages	Images				
SET	Mono (40%)	80K	80K	200,000	200,000	200,000	0
	Color (60%)	120K	120K			0	200,000
Toner Cartridge (5% coverage)	Cyan	5,000		5,000	5,000	5,000	
	Magenta	5,000		5,000	5,000	5,000	
	Yellow	5,000		5,000	5,000	5,000	
	Black	5,500		5,500	5,500	5,500	
PTB Unit	Color	50,000	50,000	50,000	50,000	50,000	
	Mono	50,000	50,000			-	
Fuser Unit	Color	100,000				100,000	0
	Mono	100,000				0	100,000
Pick Up	Color / Mono	70,000				70,000	70,000
Friction Pad	Color / Mono	70,000				70,000	70,000

* Toner Cartridge yield : Average CMY Cartridge Yield 5000 standard pages
           Average K Cartridge Yield 5500 standard pages
           Declared yield value in accordance with ISO/IEC 19798

2.1.4 Periodic Replacing Parts

Samsung shall specify parts requiring replacement and the frequency of replacement. The parts identified may be deemed customer replaceable parts. Periodic replacement parts shall be recommended as follows

Toner Cartridge	2K(Color), 2.5K(Mono) Page5K(Color), 5.5K (Mono) pages	Initial Toner, User replaceableUser replaceable
PTB Unit	50K(Color/Mono) Images	User replaceable
Pick up(FCF, SCF, MPF)	70K(Color/Mono) pages	Field replaceable
Friction Pad(FCF, SCF, MPF)	70K(Color/Mono) pages	Field replaceable

** Based on Printing Volume ratio of 60% Color and 40% B/W

2.1.5 Competitor Model

■ SEC Model

	CLP-610ND	CLP-660N	CLP-660ND
Image			
Speed (ppm)	20/20	24/24	24/24
Resolution (dpi)	1,200 x 600	1,200 x 600	1,200 x 600
CPU (MHz)	266	533	533
Memory (MB)	64	128 (Max.640)	128 (Max.640)
FPOT (sec)	12	12	12
N/W	N/W	N/W	N/W
Duplex	Built in	Manual	Built in
Paper Handling	250 CST 100 MP	250 CST 100 MP	250 CST 100 MP
Toner	2.5K / 2K / 5.5K / 5K	2.5K / 2K / 5.5K / 5K	2.5K / 2K / 5.5K / 5K
SCF	500 sheet	500 sheet	500 sheet

■ Competitor Model

Model Name	Samsung CLP- 610ND	HP CLJ 2605n	OKI 3400N
Image			
Speed (ppm)	20/20	12/10	20/16
FPOT	12	20	9/13
Resolution	1,200 x 600 dpi	2,400 x 600 dpi	1,200 x 600 dpi
Processor	266	300	200
Ram(Max.)	32	64 (320)	32 (288)
Emulation	GDI	PDL	GDI
Interface	USB 2.0, N/W	USB 2.0, N/W	USB 2.0, N/W
Paper Input (Capa./Type)	250 CST, 1 Manual 500SCF	250 CST, 1 Manual 250 SCF	250 CST
Toner	2.5K / 2K / 5.5K / 5K	2.5K / 2K	-

Model Name	Samsung CLP- 660N	HP CLJ 3600n	Lexmark C524N	OKI 5500N	KM 5430DL
Image					
Speed (ppm)	24/24	17/17	19/19	24/20	20/20
FPOT	12 sec	14 sec	13 sec	9/13 sec	14 sec
Resolution	1,200 x 600 dpi	3,600 x 600 dpi	1,200 x 1,200 dpi	1,200 x 600 dpi	2,400 x 600 dpi
Processor	533	360	500	200	200
Ram(Max.)	128 (640)	64	128 (640)	32 (288)	64 (576)
Emulation	PDL	GDI	PDL	GDI	GDI
Interface	USB 2.0, N/W	USB 2.0, N/W	USB 2.0, N/W	USB 2.0, N/W	USB 2.0, N/W
Paper Input (Capa./Type)	250 CST 100 MP 500 SCF	250 CST 100 MP 500 SCF	250 CST 100 MP 500 SCF	300 CST 100 MP 530 SCF	250 CST 500 SCF
Toner	2.5K/2K/5.5K/5K	6K/4K	8K/5K (initial 1.5K)	5K/5K (initial 1.5K)	6K/6K (initial 3K)

2.2 System Overview

This chapter describes the functions and operating principles of the main components.

2.2.1 System Structure

2.2.1.1 Main Parts of System

①	OPC (Organic Photo Conductor)	④	Deve Roller	⑧	Pick_up Roller
		⑤	Transfer Roller	⑨	Rigi Roller
②	Charge Roller	⑥	Heat Roller	⑩	Exit Roller
③	MP Roller	⑦	Pressure Roller	⑪	Duplex Roller
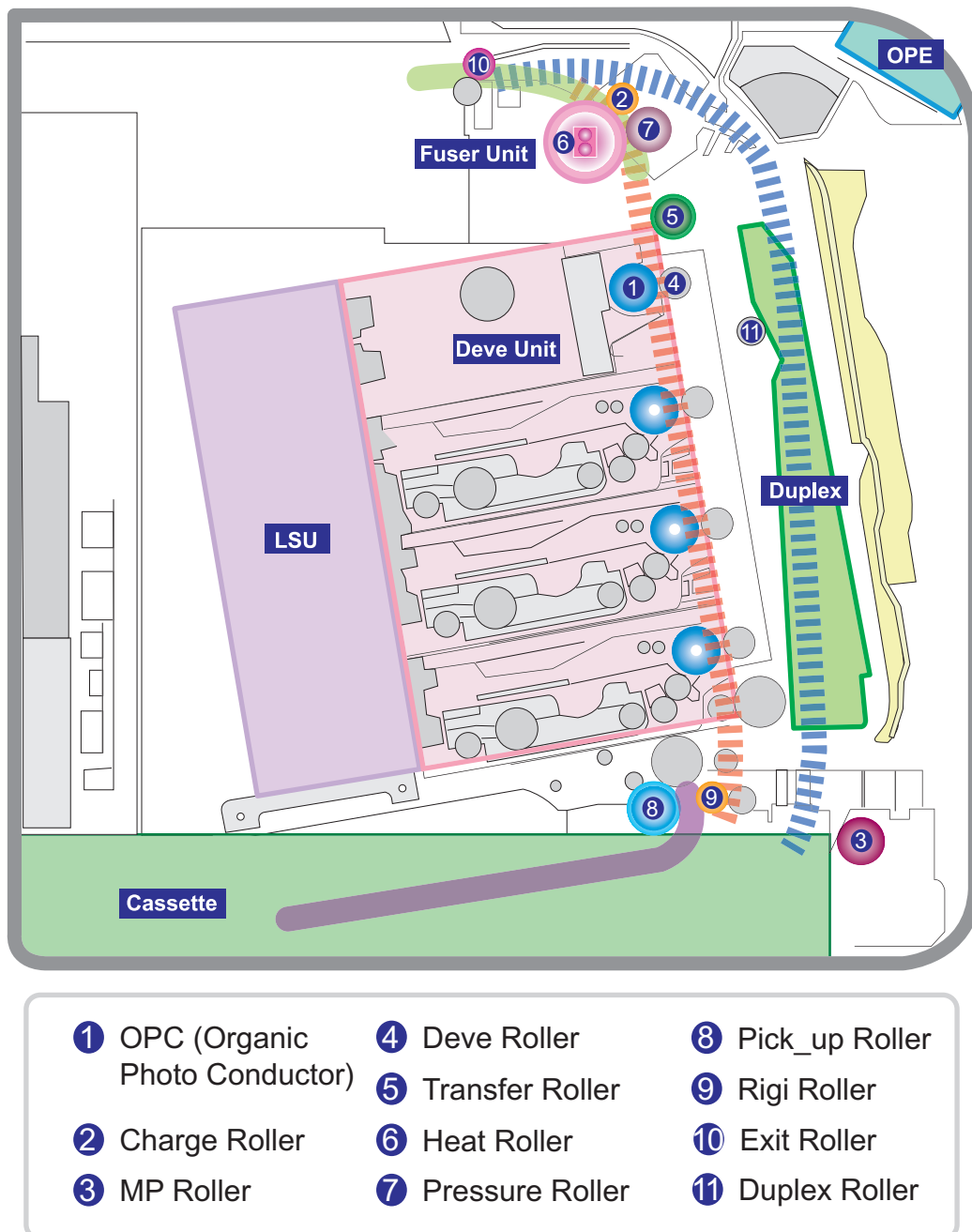
1) Toner Cartridge

* Method of Toner supply : Toner is transported to the developing roller by supply belt.
* Regulating Toner level : Regulating Toner level by SUS. Blade
* OPC Cleaning: Collect the toner by using Cleaning Blade (urethane)
* OPC Drum protecting Shutter : No (Take care of impact)

2) PTB(Paper Transfer Belt)

* The life span: Print over 50,000 sheets
* Specification: Similar to DaVinci(CLP-600) Ass y.
* TANDEM Method Paper Transporting Unit by using Paper Transfer Belt
* Belt Driving Method : Friction Driving by Drive Roller
* Belt Cleaning : Collect the toner by using Rubber Blade
* Management of waste toner : The Waste Toner Tank Be equipped
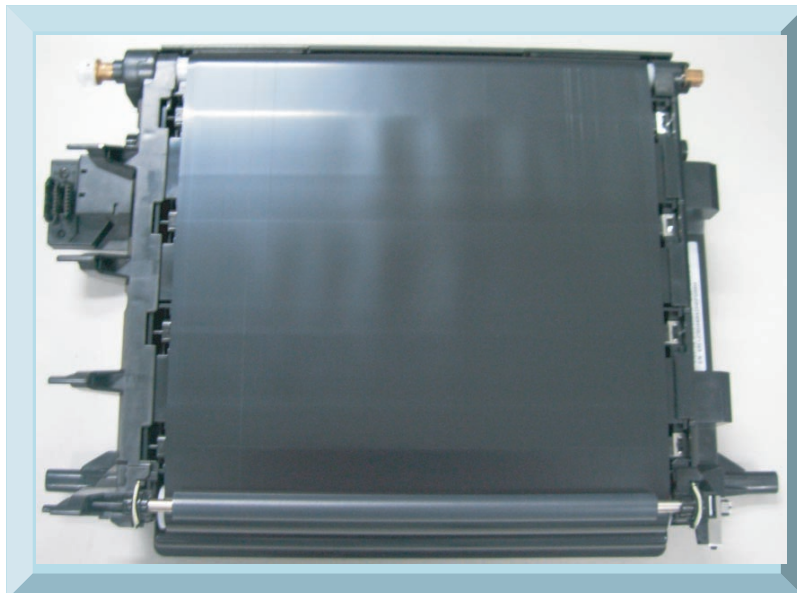
3) Transfer Roller

Once the complete, full colour, image, has been built up on the ITB the Transfer Roller is used to transfer the image onto paper. This is called the T2 Transfer (T2 Transfer is none)

4) Cassette

* Feeding Method : Cassette Type
* Feeding Standard : Center Loading
* Feeding Capacity : Cassette 250 Sheets(75g/ ㎡, 20lb Paper Standard) Manual Feeder
* Paper Detecting Sensor : Photo Sensor (Empty, Registration, Exit)
* Paper Size Sensor : None

5) SCF (Second Cassette Feeder)

This additionally stores and automatically feeds printing paper. Its function is the same as the FCT (First Cassette Tray)

> Spec.
* Paper Direction : FISO (Front-in, Side-Out)
* Cassette Type : A4, Ltr
* Paper Discharge : Separation Claw
* Capacity : 500 Sheets (Standard paper 75mg/m² 20lb)
* Paper Size : A4, Letter
* Paper Weight (average) : 60~90g/m² (16~24lbs)
* Paper Type : General Printing Paper
* Additional Function : Paper Empty Sensor
                        Paper Registration Sensor
                        Paper Exit Sensor

6) MPF (Multi Purpose Feeder)

The Multi-Purpose Feeder not only feeds general printing paper but is also used for many other kinds of paper such as those paper sizes not supported by the cassette, envelopes, OHP, etc.
> Spec.
* Capacity : Cut Sheet : 100 Sheets (Standard paper $75mg/m^2$ 20lb)
* OHP : 300 Sheets
* Envelope & Label & Card Stock : 10 Sheets
* Paper Arrangement : Side Registration
* Power : Main Motor (Stepper Motor)
* Driving Management : Solenoid
* Paper Discharge : Friction Pad Method
* Paper Size : Legal, Folio, A4, Letter, Executive, JIS B5, A5, A6
* Paper Weight (Average) : $75\sim163g/m^2$
* Paper Type : General, Label, Post Card, Transparency, Envelope, Card Stock (Tracing Paper is not served)
* Additional Function : Paper Empty Sensor

7) Feeder

* Paper Arrangement : Side Registration.
* Power : Main Motor (Stepper Motor)
* Paper Management : Shutter Method

8) Duplex Unit

The Duplex function is used Duplex Unit of the PTB_SET.

CLP-610N,CLP-660N : Manual
CLP-610ND,CLP-660ND : Built-in

9) Exit Unit

The Exit Unit guides paper that is just about to leave the print engine. Printed-paper is discharged by the Exit Roller and Kicker into the Output Tray.
> Spec.
* Capacity : 250 sheets (Standard A4, 75g/m2)
* Paper Direction : Face Down
* Exit Drive Roller : It is driven by Main Motor (BLDC), and it rotates clockwise for normal feed and antic-clockwise when reverse feeding for duplex printing.
* Sensor : There is photo interrupt sensing (GPIS73)
* Jam Detect : Exit Cover Open.

10) Toner Kits

* The life span: Color -> 5,000 images (Standard Coverage Print-Out)
Black -> 5,500 images (Standard Coverage Print-Out)
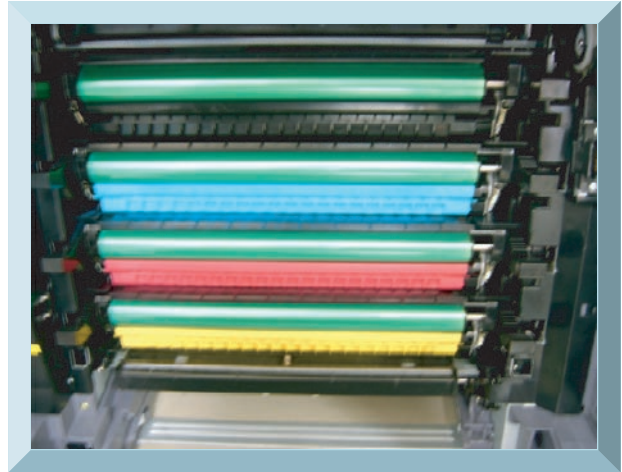
11) Fuser Ass'y

* Heat Lamp : New Part - Dual Lamp Type(610:Single lamp type)
* Fusing system : Belt fusing type
  - Heat roller : Pipe type(Lamp inside)
  - Pressure roller
  - Fuser roller
  - Belt
* Thermistor - Temperature-Measuring Device
* Thermostat - Critical Temperature-Detecting Device

12) LSU(Laser Scan Unit)

* Consisted of LD(Laser Diode) and Polygon Motor Control.

Error	Phenomenon
Polygon Motor Error	The Rotation of Polygon Motor can not reach stable
Hsync Error	Though the rotation of Polygon Motor reach stable, the signal of Hsync is not occurred

13) Main Drive Unit

This motor drives, by way of a gearbox, the OPC unit, ITB unit, feeder unit, fuser unit, exit unit and duplex unit.
> Spec.
        * Power : 20W Max (24V)
        * Drives : OPC unit, ITB unit, Fuser, Feeder, Duplex unit, Exit unit

14) DEVE Drive Unit

This motor drives, by way of a gearbox, the toner cartridges and ITB cleaning cam.
> Spec.
        * Power : 20W Max (24V)
        * Drives : DEV (4 Color)/ITB Cleaning)

15) SMPS (Switching Mode Power Supply)

This power supply uses the AC supply voltage to generate the DC voltages used by the system.
The SMPS has 5 output channels (+3.3V, +5V, +24V, +24VF1, +24VF2).
The AC Heater Control Unit that supplies power to the fuser is also located on the SMPS.

2.2.2 H/W Configuration (Engine & Controller)

HVPS

Panel

SMPS

Main Board

FDB

2.2.2.1 MAIN BOARD

CLP-660

23
1
2
3
4
22 21 20
STEP MOTOR
IC
18
19
17
16 15
EEPROM
64 KBIT
NOR FLASH
16MBYTE
SPGPXM
DDR1
5
USB CHIP
6
LPEC3
PHY CHIP
RM7065
7
8
9
10
11
12
13
14

CLP-610

23
1
2
3
4
22 21 20
STEP MOTOR
IC
18
19
16
15
CHORUS3
DDR2
5
LPEC3
USB CHIP
6
PHY CHIP
NOR FLASH
16MBYTE
8
EEPROM
64KBIT
14
7
9 10
12
13
11
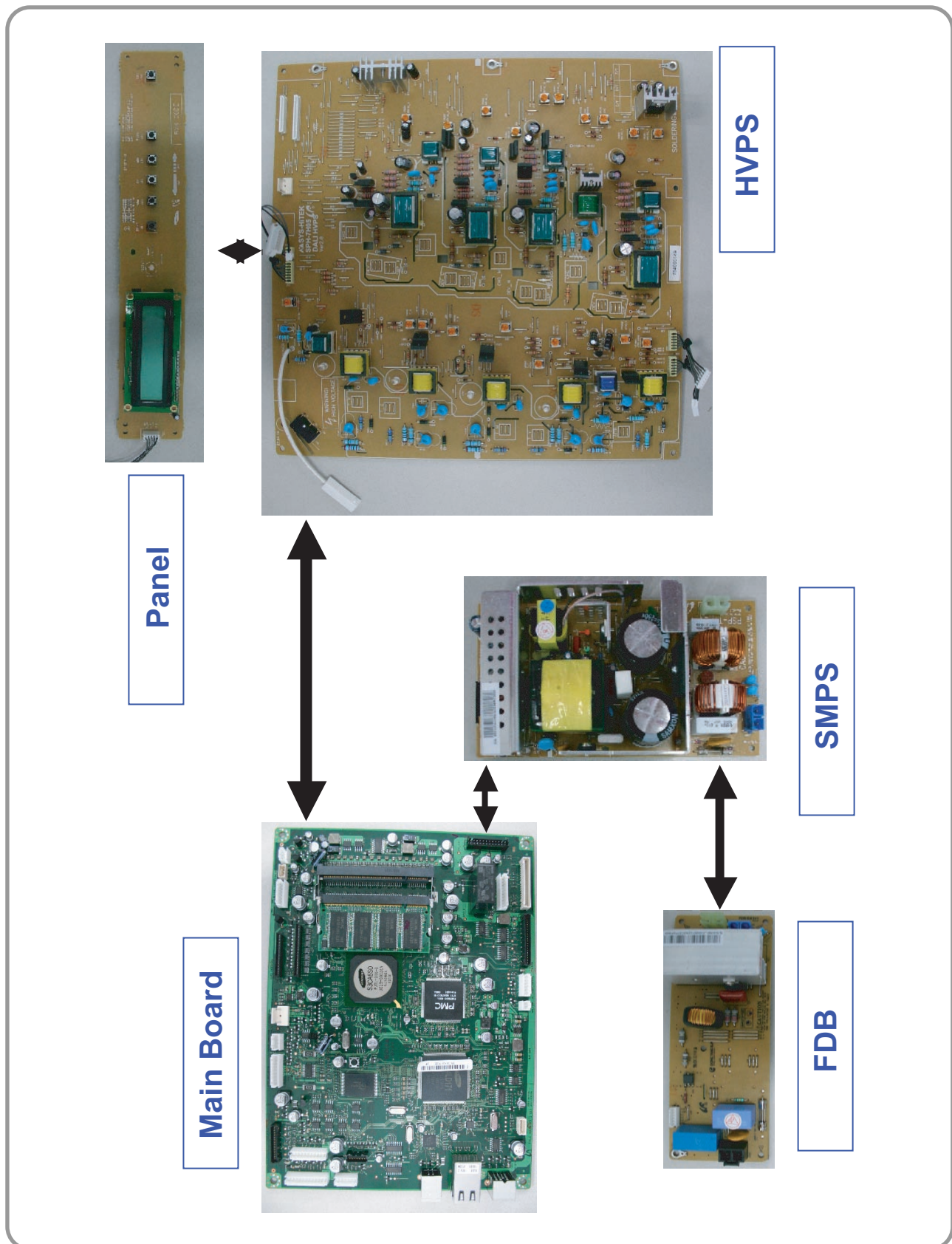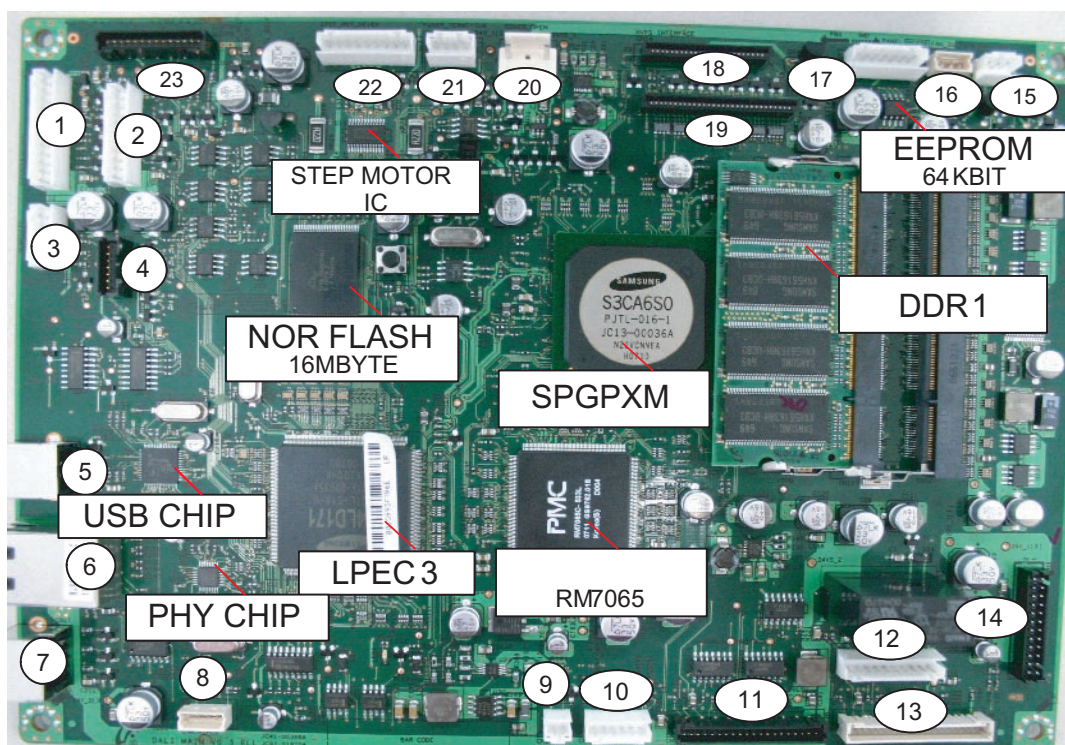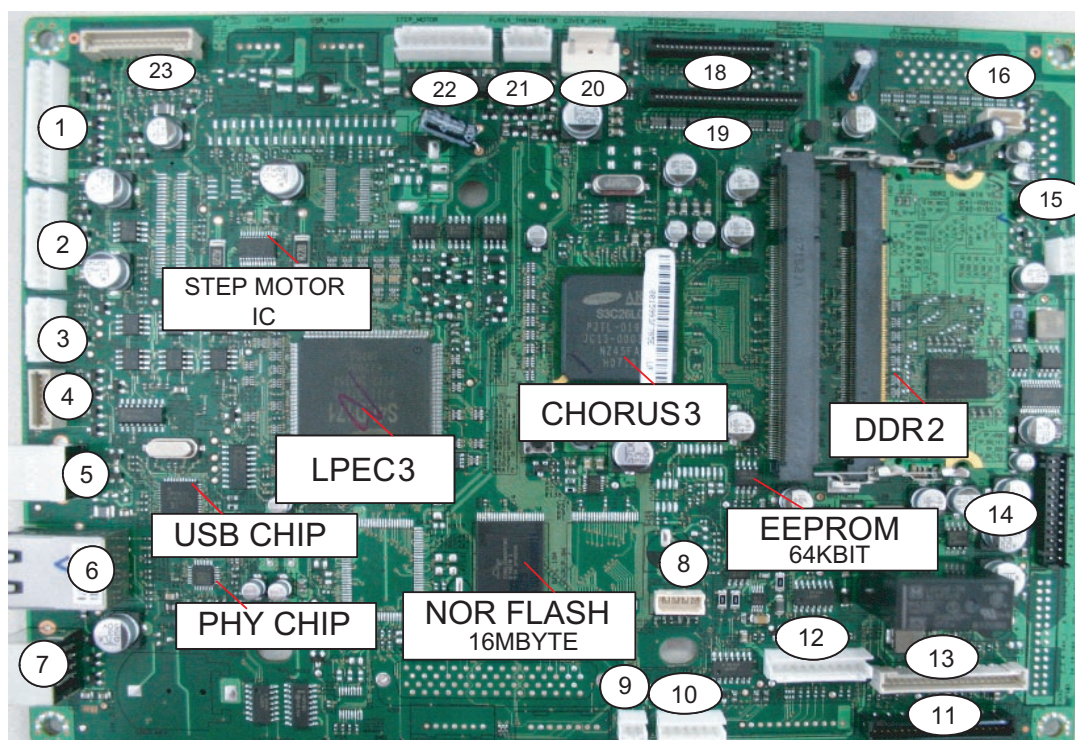
1	DEVE BLDC MOTOR ,PICKUP CLUTCH	12	LSU BLDC MOTOR
2	OPC BLDC MOTOR	13	LSU Y,M
3	HUMIDITY_INNER TEMP SENSOR	14	SMPS
4	DEVE CRUM I/F	15	REAR FAN
5	USB	16	SMPS FAN
6	LAN	17	PANEL (for debug)
7	SCF	18	HVPS1(PANEL,EXIT,REGI,EMPTY SENSOR, PICKUP)
8	DEBUG	19	HVPS2(HIGH VOLTAGE CONTROL)
9	LSU TEMP SENSOR (RESERVED)	20	24V INTERLOCK SWITCH
10	FUSER CONTROL	21	FUSER THERMISTOR
11	LSU C,K	22	FUSER STEP MOTOR, FUSER FAN
		23	PTB (CRUM, ACR)

• CPU : CLP-610ND : Chorus3 (SoC)
   CLP-660N/660ND : Mips 7065C 533MHz + SPGPXm

• Memory :
 - RAM : CLP-610ND : DDR2 Default 128MB + Option 128MB/256MB
     CLP -660N/660ND : DDR1 Default 128MB + Option 256MB/512MB
 - ROM : 16MB
 - EEPROM : 64kb

• Peripherals :
 - USB 2.0
 - 10/100 Based N/W (MII Interface Phy Chip Used)

• I/O :
 - Digital I/O Port : Basic I/O, PWM : Motor & HVPS Control
 - UART : Debug Only
 - I²C : EEPROM & SDRAM & CRUM Interface
 - Analog I/O Port (ADC : Sensor Interface, DAC : LD Power Control)

Chorus 3 Architecture

• CPU Core : ARM9266EJS 360Mhz (I-Cache : 16KB, D-Cache : 16KB)

• SDRAM Controller : 4 bank DDR1 SDRAM and 4 & 8 bank DDR2 SDRAM
       (DDR2 2DIMM Used, 166MHz), 120Mhz System Bus

• ROM Controller : 2 Banks (1 Bank Used)

• I/O Controller : 4 Channel

• DMA Controller : 3 Channel

• HPVC : 4 Channel Dual / Single Beam

• UART : 4 Channels (Debug, OPE 2 Channel used)

• Interrupt : 4 External, 64 Internal

• TIMER : 6 System Timer

Mips + SPGPXm Architecture

• CPU : Mips IV 533Mhz (I-Cache : 16KB, D-Cache : 16KB, Secondary-Cache : 256KB)

• SDRAM Controller : 4 bank DDR1 SDRAM (2 DIMM Used), 120Mhz System Bus

• ROM Controller : 4 Channel NOR, 1Channel NAND (1 Channel NOR Used)

• I/O Controller : 6 Channel

• DMA Controller : 4 Channel

• HPVC : 4 Channel Dual / Single Beam

• UART : 5 Channels (Debug, OPE 2 Channel used)

• Interrupt : 10 External

• TIMER : 6 System Timer

Memory Interface

• ROM :
 - Nor Flash used (16MB)
 - Interface With Chorus 3/SPGPXm ROM Controller

• SDRAM :
 - Size : CLP-610ND(DDR2) : Default 128MB (Option 128MB/256MB)
         CLP-660N/660ND(DDR1) : Default 128MB (Option 256MB/512MB)

• EEPROM :
 - Size : 64kb
 - Interface With Chorus 3/SPGPXm I2C Controller

• CRUM :
 - Size : 256Byte
 - Interface With Chorus M I2C Controller via Deve Joint B'D

I/O Interface

• High Speed USB 2.0 (High speed 480Mbps / Full speed 12Mbps)

• N/W Embedded
  - Chorus 3/SPGPXm With MII Interface
  - Active LED(Yellow) / Link LED(Green)

• PWM
  - High Voltage Control With Duty
  - Main Motor Clock

• I2C Interface
  - NVRAM (system information + network information)
  - CRUM

2.2.2.2 Power Flow

• SMPS
 - Type IV (standard type)
 - +24V : For use Mechanical Part (Motor & Actuator (Solenoid, Clutch))
 - +5V   : Logic, Analog, Sensor,

• Main B'D
 - Supply From SMPS +5V
 - Power Supply with Regulator (3.3V & 1.2V & 1.0V : Switching Regulator)
 - 3.3V : I/O Operating (Digital & Analog)
 - 1.0V : Chorus 3 Core Voltage
 - 1.2V : SPGPXm Core Voltage

• HVPS
 - High Voltage Source for EP Condition
 - Supply From SMPS +24V
 - Controlled By PWM Pulse & I/O

Power Flow CLP-660N/660ND/610ND
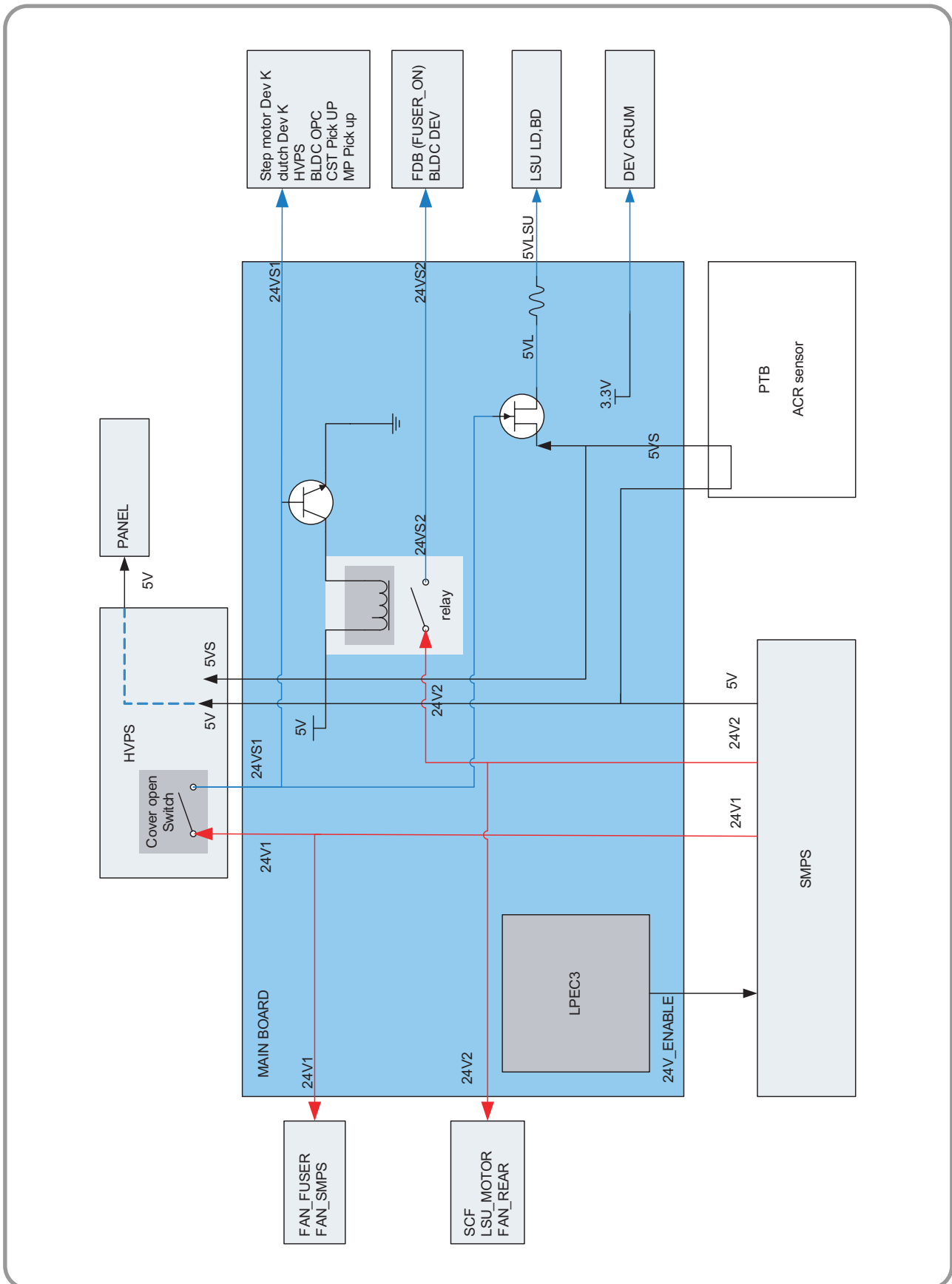
2.2.2.3 HVPS
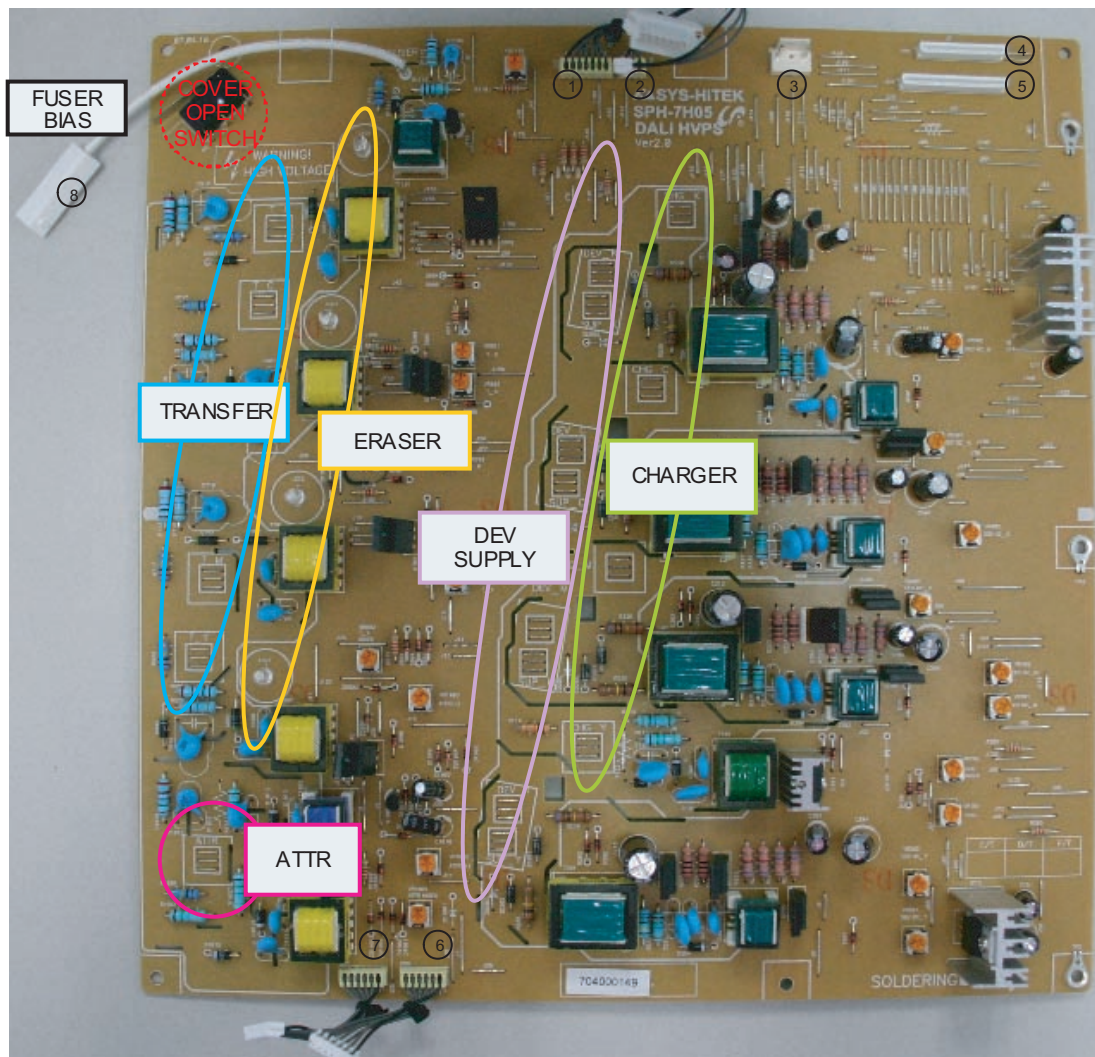
Charger : 1channel	
DEV AC : 4channel	
Supply DC : 4channel	
ATTR+ : 1channel	
ATTR- : 1channel	
Transfer : 4channel	
Fuser Bias : 1channel	

1	**PANEL**
2	**EXIT SENSOR**
3	**24V SWITCH**
4	**HVPS1(form mainboard)**
5	**HVPS2(form mainboard)**
6	**Feed, CST empty sensor**
7	**MP solenoid, MP empty, CST detect**
8	**Fuser bias**

Output	Input Duty (EDC mode display)	Output Voltage/Current	Load	Read voltage (ADC)	Tolerance
CHARGER Y,M,C,K	169(66%)	-1170V	200M	-	3%
SUP DC Y,M,C,K	100(39%)	-295V	68pF	-	3%
DEVE AC Y,M,C,K	AC freq2.6kHz AC PWM 92(36%) AC Vpp PWM 65(25%)	174.0V (about 1740V) [AC JIG]	68pF	-	1.5%
Transfer_Y,M,C,K	97(38%)	14uA	90M	1.7V (132)	3%
ATTR	108(42%)	950V	100M	0.6V (46)	3%
ATTR[-]	on	350V	25M	-	15%
Fuser Bias	128(50%)	300V	100M	-	3%
Eraser Y,M,C,K	100(39%)	on/off (18mA ±3mA)	-	-	

2.2.2.4 Fuser Drive Board
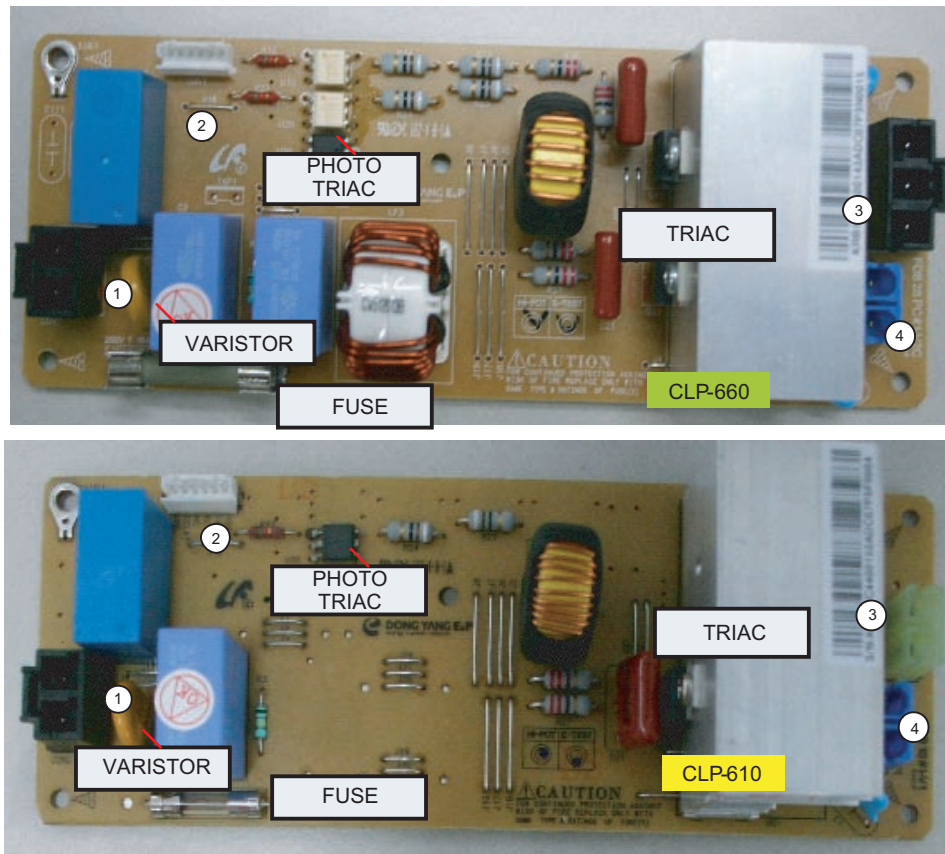
CLP-660

· Zero crossing signal detect

· 2 lamp (800W+500W) Phase control

CLP-610

· Zero crossing photo triac

· 1 lamp (800W) Pulse control

1	INLET AC
2	FUSER CONTROL (from Main board)
3	FUSER AC (to Fuser lamp)
4	SMPS AC (to SMPS)

2.2.2.5 SMPS
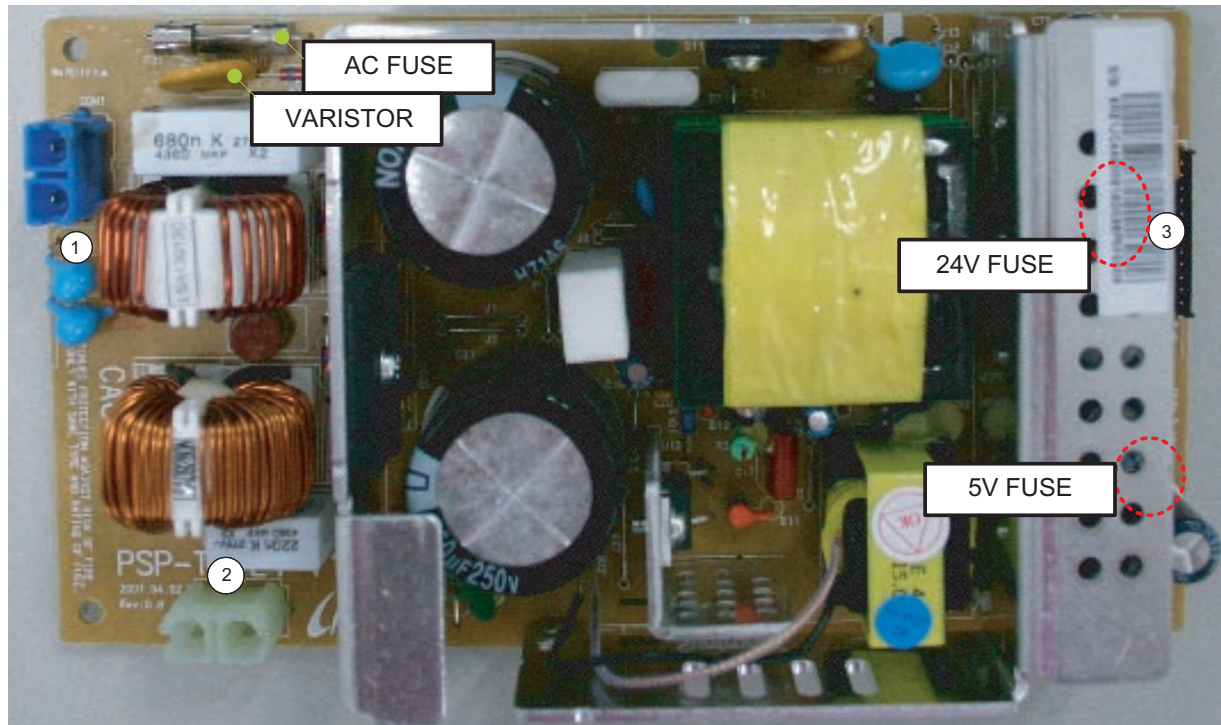
| SMPS : TYPE4 |
| INPUT : V1-AC 110V, V2-220V |
| OUTPUT : 24V, 5V |

1	AC from FDB
2	NC (not used)
3	24V,5V to main board

2.2.2.6 CRUM Interface
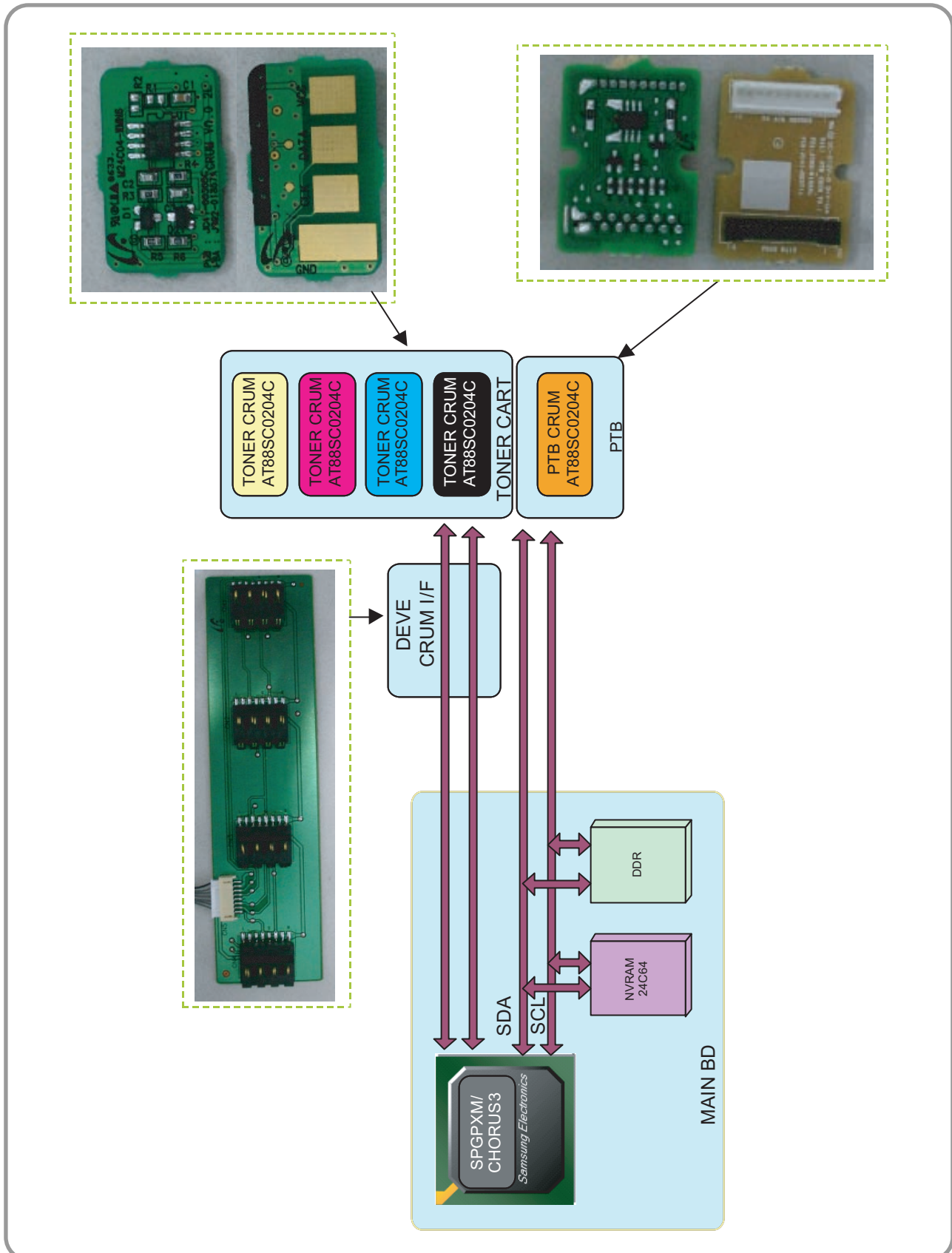
3. Disassembly and Reassembly

3.1 Precautions when replacing parts

3.1.1 Precautions when assembling and disassembling

* Use only approved Samsung spare parts. Ensure that part number, product name, any voltage, current or temperature rating are correct. Failure to do so could result in damage to the machine, circuit overload, fire or electric shock.

* Do not make any unauthorized changes or additions to the printer, these could cause the printer to malfunction and create electric shock or fire hazards.

* Take care when dismantling the unit to note where each screw goes. There are 19 different screws. Use of the wrong screw could lead to system failure, short circuit or electric shock.

* Do not disassemble the LSU unit. Once it is disassembled dust is admitted to the mirror chamber and will seriously degrade print quality. There are no serviceable parts inside.

* Regularly check the condition of the power cord, plug and socket. Bad contacts could lead to overheating and firfe. Damaged cables could lead to electric shock or unit malfunction.

3.1.2 Preautions when handling PBA

Static electricity can damage a PBA, always used approved anti-static precautions when handling or storing a PBA.

>> Precautions when moving and storing PBA
1. Please keep PBA in a conductive case, anti-static bag, or wrapped in aluminum foil.
2. Do not store a PBA where it is exposed to direct sunlight.

>> Precautions when replacing PBA
1. Disconnect power connectors first, before disconnecting other cables
2. Do not touch any soldered connections, connector terminals or other electronic parts when handling insulated parts.

>> Precautions when checking PBA
1. Before touching a PBA, please touch other grounded areas of the chassis to discharge any static electrical charge on the body.
2. Take care not to touch the PBA with your bare hands or metal objects as you could create a short circuit or get an electric shock. Take extra care when handling PBAs with moving parts fitted such as sensors, motors or lamps as they may get hot.
3. Take care when fitting, or removing, screws. Look out for hidden screws. Always ensure that the correct screw is used and always ensure that when toothed washers are removed they are refitted in their original positions.

3.1.3 Releasing Plastic Latches

Many of the parts are held in place with plastic latches. The latches break easily; release them carefully.
To remove such parts, press the hook end of the latch away from the part to which it is latched.
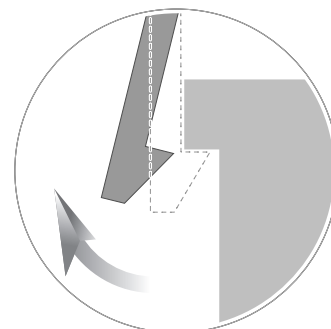
3.2 Parts for Maintenance and Repair

3.2.1 Replacement interval for parts with a limited life

Some of the parts in this printer have a limited life, shorter than that of the whole machine. These parts must be replaced periodically.
The table below shows the interval at which these parts should be replaced.
The table shows the life of each part, and is measured when using A4 paper. When servicing a machine always check the status of these parts using the control panel and ensure that parts are replaced at the appropriate times otherwise a general degradation in print quality will occur.

Item(s)	Pages Printed	Part number	Remark
Black toner cartridge	Approx.Initial : 2500 Pages	CLP-K660A (Black)	User Replacement
	Sales : 5500 Pages	CLP-K660B (Black)	
Color toner cartridge	Approx.Initial : 2000 Pages	CLP-C660A(Cyan)	
		CLP-M660A(Magenta)	
		CLP-Y660A(Yellow)	
	Sales : 5000 Pages	CLP-C660B(Cyan)	
		CLP-M660B(Magenta)	
		CLP-Y660B(Yellow)	
PTB	Approx. 50,000 black pages or 50,000 color pages	CLP-T660A CLP-T660B(with duplex unit)	
Pick-up roller	Approx. 70,000 Pages		Engineer Replacement
Fuser Unit	Approx. 100,000 black pages or 100,000 color pages		

3.2.2 Printer Cleaning

A printer should be regularly cleaned, especially if it is used in a dusty environment. This will ensure that print quality remains high and failure due to contamination of printing services is less likely to occur.

* Clean the printer with a soft, lint free, cloth dipped in a "Recommended cleaner"
  "Recommended cleaner" can be purchased from our service center. (where available)

* Do not touch the transfer roller when cleaning the inside of the printer. Grease and oils from the skin will contaminate the surface and reduce print quality.

* Do not touch transfer roller when cleaning inside of machine. If transfer roller gets dirty, printing quality could be low.

* Please refer to the User Manual for cleaning instructions.

3.3 Information Related to Disassembly and Assembly.

3.3.1 Special service parts

Never disassemble or adjust the items mentioned, a stock of these items should be maintained.

1) Disassembly of the LSU unit

There are no serviceable parts inside the LSU. Alignment of the mirrors is critical. Opening the LSU will allow dust into the laser and significantly reduce print quality. It is very dangerous to operate or service a machine with the LSU open or system interlocks disabled. Exposure to laser radiation can cause blindness.

2) Disassembly of the PTB unit

Do not disassemble the PTB. The alignment of the home sensor is critical and is set up in the factory on a special jig. Incorrect re-assembly will cause print quality degradation.

3) Care of the Toner cartridge

Toner cartridges contain an extremely fine powder. Please keep toner cartridges away from children. The toner powder contained in the toner cartridge may be harmful and if swallowed you should contact a doctor. Take care not to spill toner - spillages should be cleaned with a vacume cleaner and washed in could water (hot water sets the toner). Do not touch the developer roller surface as contamination will reduce print quality. Take care not to damage the roller's surface when installing or removing a toner cartridge.

4) Disassembly of DEVE drive ass'y and the main drive ass'y

The alignment of the drive mechanism is critical and it has been set up in factory using a jig and a driving gear. It is adjusted for the best gearing alignment. If the motor is disassembled alignment would not be maintained and this could cause operational noise and image problems: image alignment and toner distribution may be affected.

5) Disassembly of terminal parts

Do not adjust the variable resistors on the PBA. They have been already adjusted in the factory.

6) Disassembly of the fuser unit

- The fuser melts toner onto the paper at a high temperature: therefore, you need to take special care not to get burned by a hot fuser. When removing the fuser from a set that has recently been operating you need to take extra care.

- Do not touch an AC line (Copper contact) on a main frame even after removing the fuser.

3.4 Disassembly Procedure

The description of disassembly and reassembly in this manual is listed according to the disassembly procedures.

3.4.1 Cover Unit

1. Remove the Cassette Unit.

2. Open the front cover.

3. Remove the PTB Unit after pull the handle.
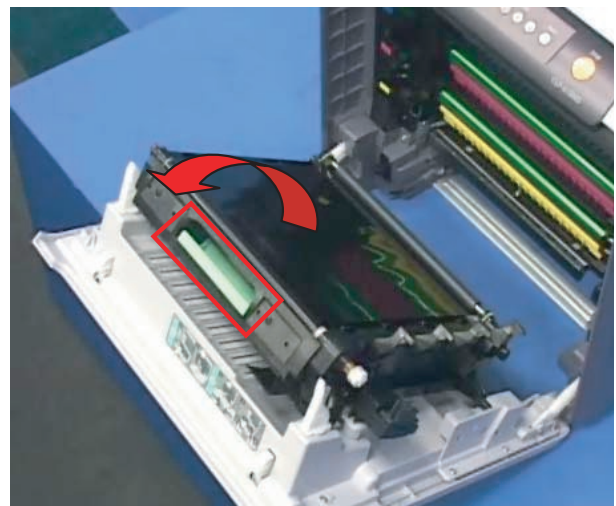
4. Remove the Toner kits

5. Open the top cover.
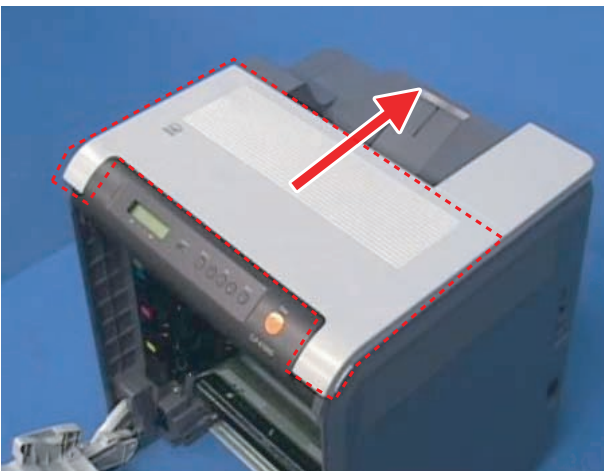
6. Remove the Fuser unit after push the lever.
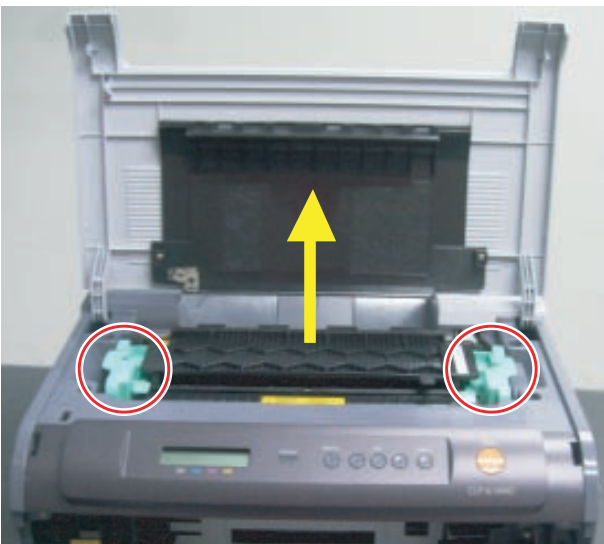
7. To remove the side cover, remove the 2 screws from the rear of SET, as shown below.
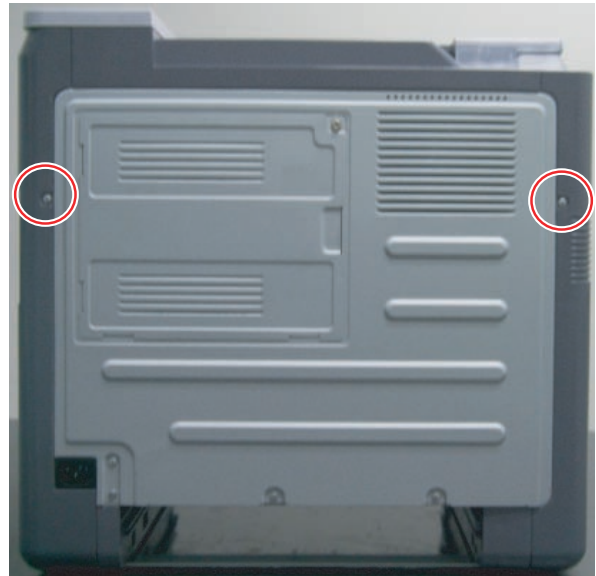
8. To remove the left cover, remove the one screw.

9. Unlatch the 2 hooks from the bottom of SET with any tool.
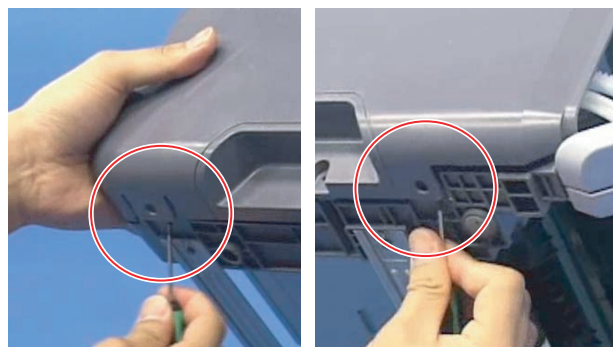
10. Unlatch the hook and remove the left cover.

11. Unplug the fan harness.
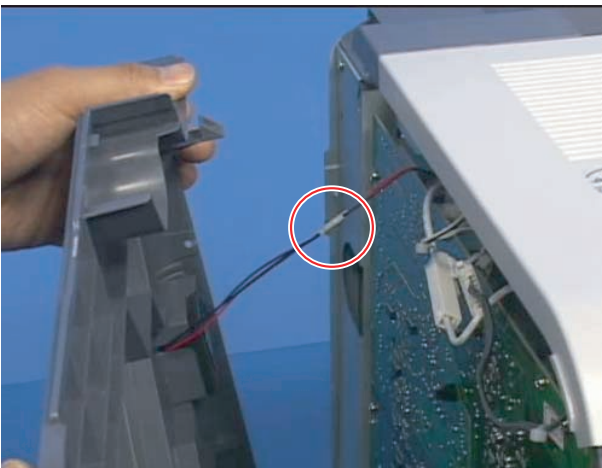
12. In the same way (procedure 8~10), remove the right cover.

13. Remove the 4 screws, and remove the rear cover.
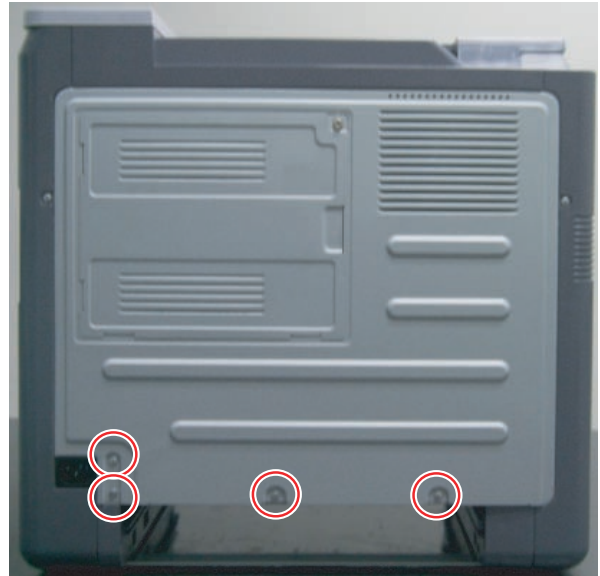
14. Remove the dummy cover after release the lever
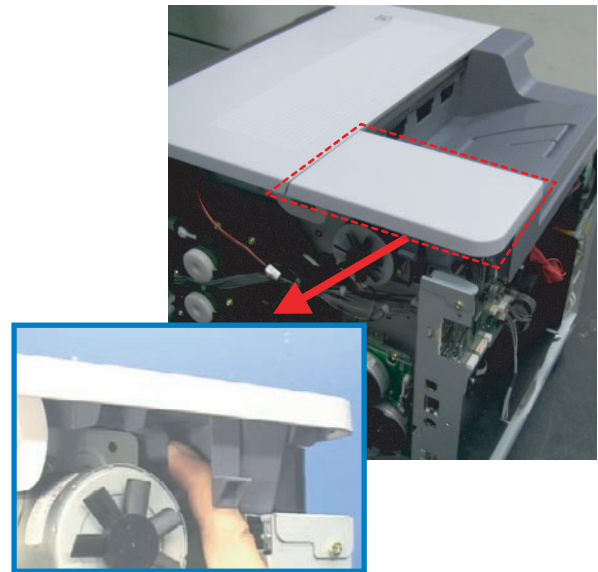
15. Open the top cover, and remove the 6 screws.

16. Remove the top cover after remove the 2 screws and the one connector.

17. Remove the left link.

18. Remove the Damper hinge-L after remove the 2 screws.

19. Remove the Bracket hinge with any tool after remove one screw.
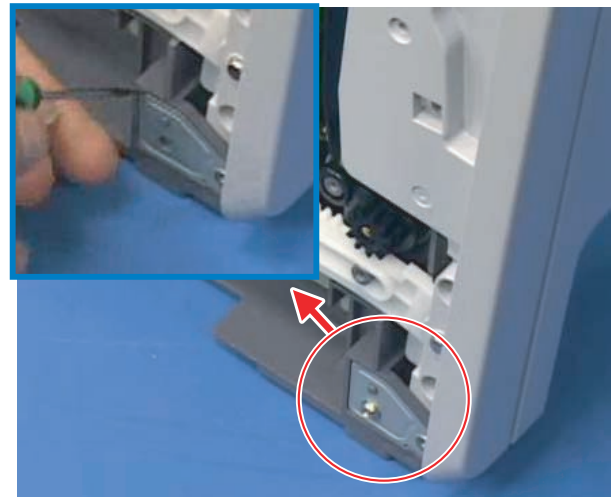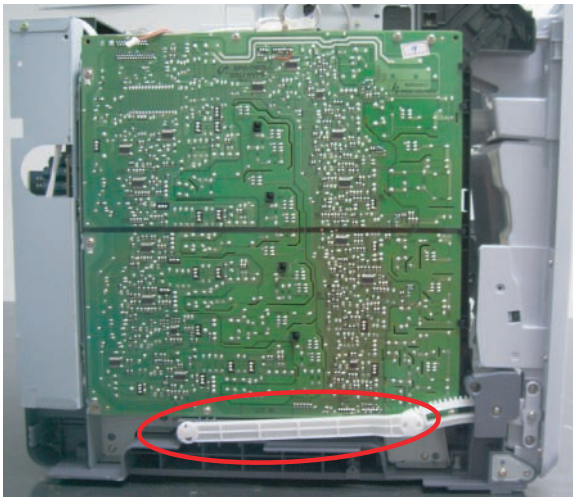
20. Remove the right link.
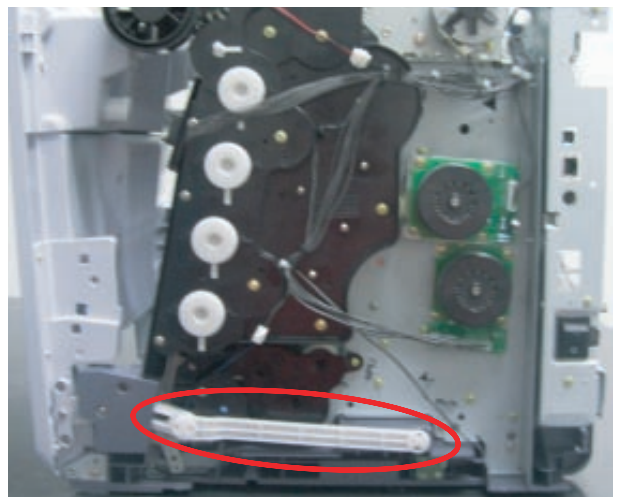
21. Remove the Damper hinge-R after remove the 2 screws.
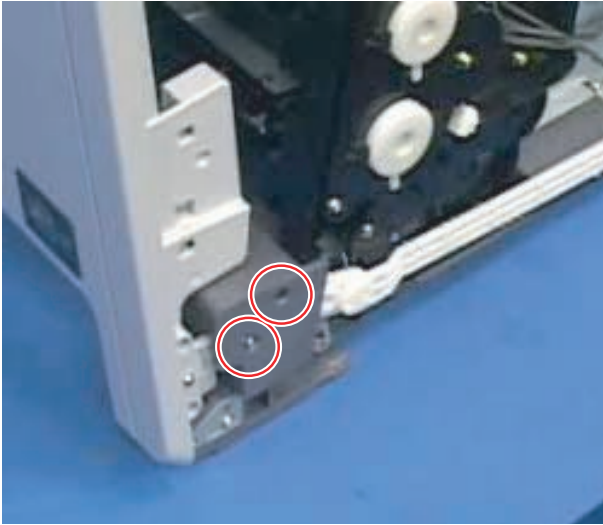
22. Remove the Bracket hinge with any tool after remove one screw.
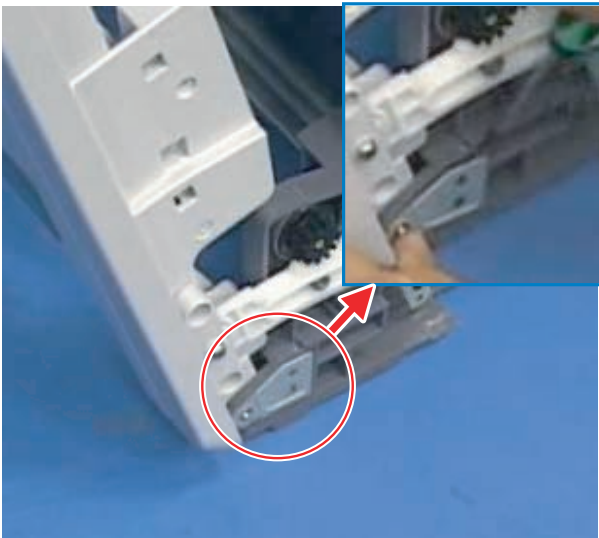
23. Remove the Damper hinge (2 EA).

24. Remove the front cover.
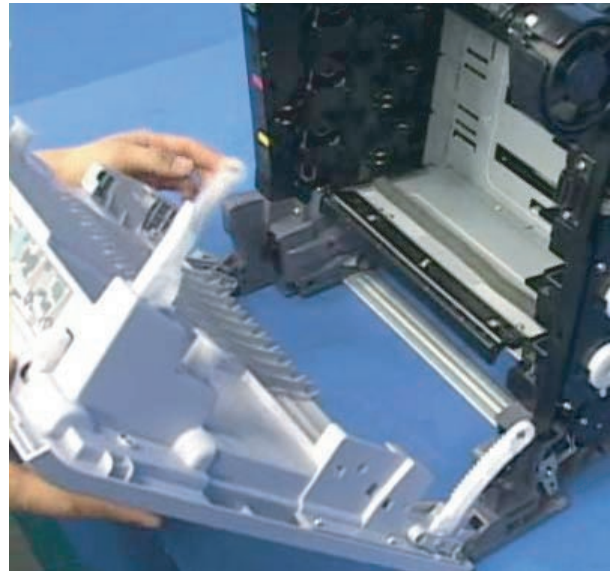
3.4.2 HVPS Board

1. Unplug the harness from the top/bottom of the HVPS Board.
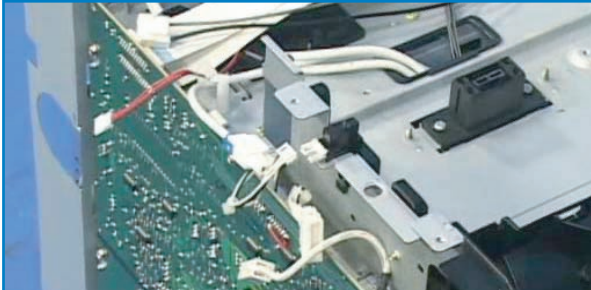
2. Unplug the flat cable (2 EA).
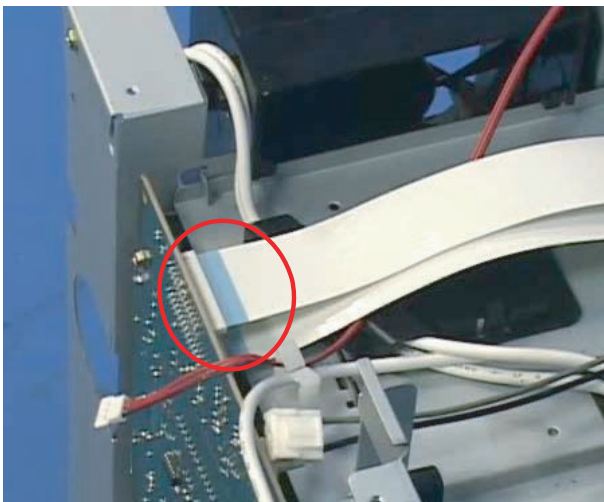
3. Remove the 8 screws and unlatch 4 hook.
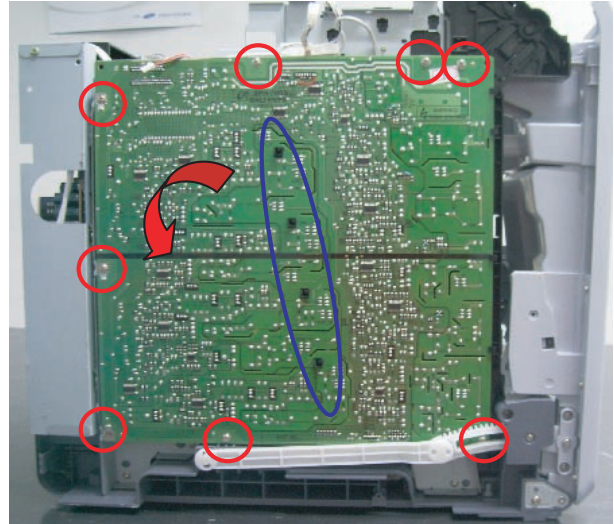
4. Unplug the harness and release the HVPS board.
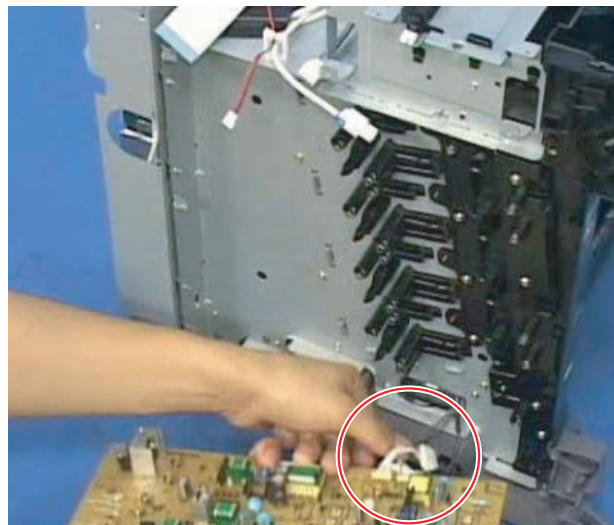
3.4.3 Main Board

1. Unplug the connectors and all the harness.
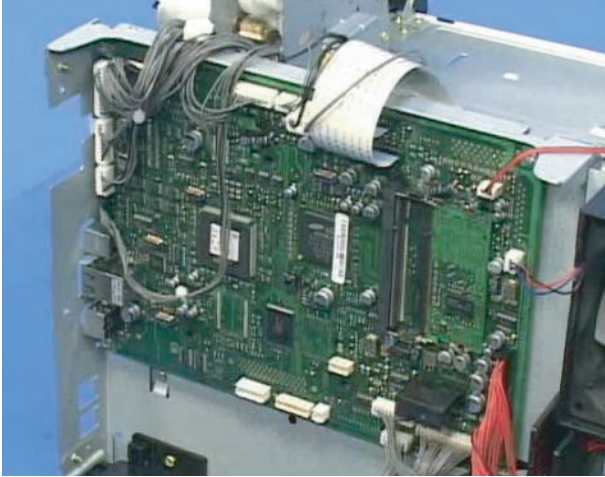
2. Remove the 4 screws.
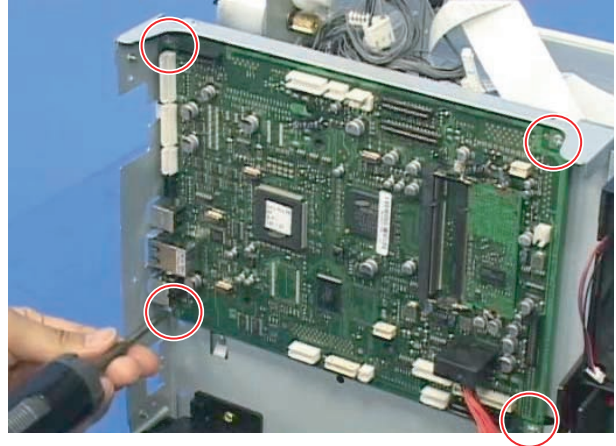
3.4.4 SMPS Board

1. Unplug the Harness, as shown below.

2. Remove the 4 screws, and release the SMPS Board from the SET.
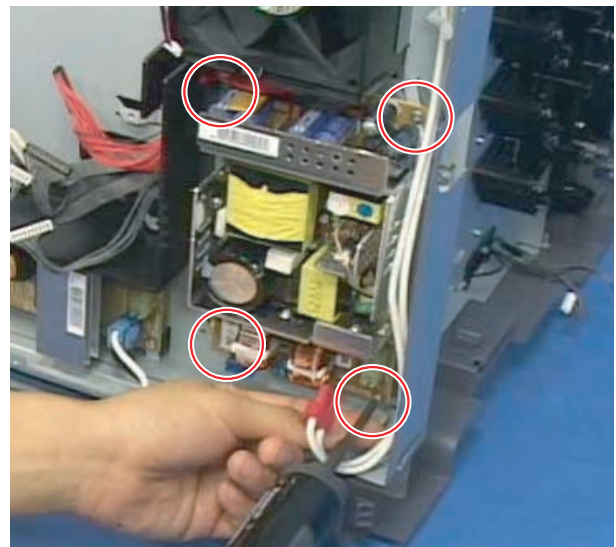
3.4.5 Fuser control Board

1.Unplug the Harness.
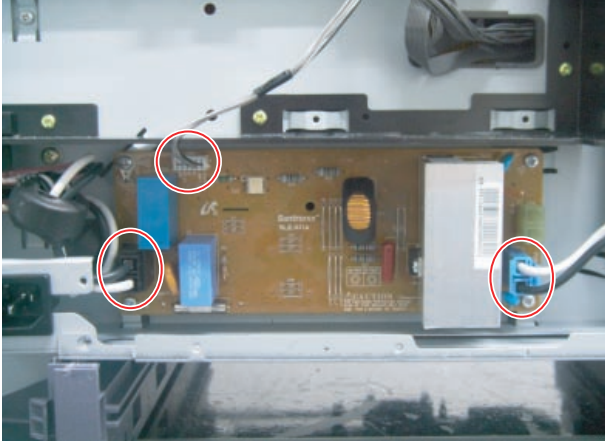
2. Remove the 4 screws, and release the Fuser control board from the SET.
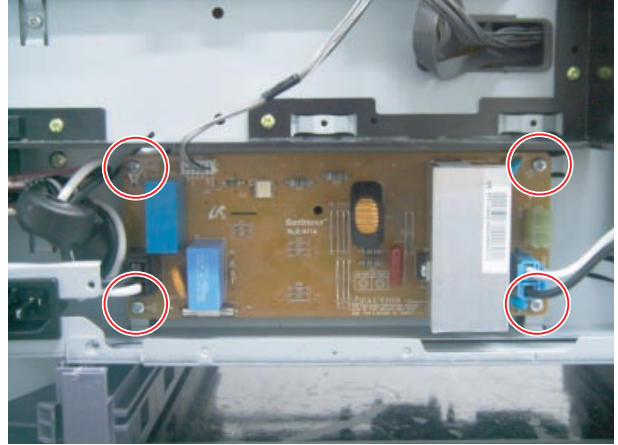
3.4.6 LSU Unit

1. To remove the Bracket main & Duct, remove the 7 screws and release it.
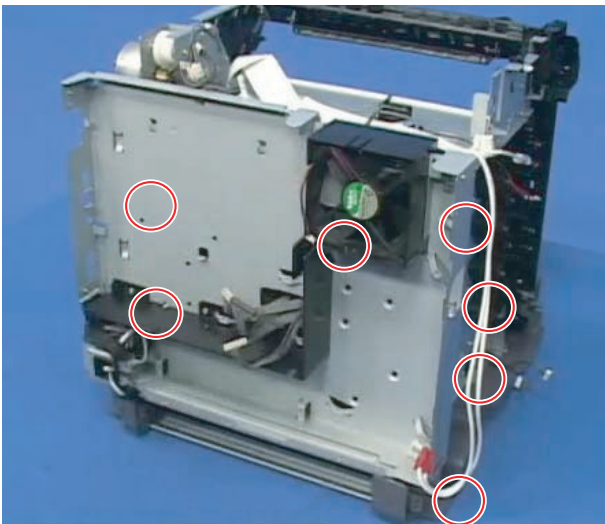
2. Remove the 4 screws and remove the LSU Unit.
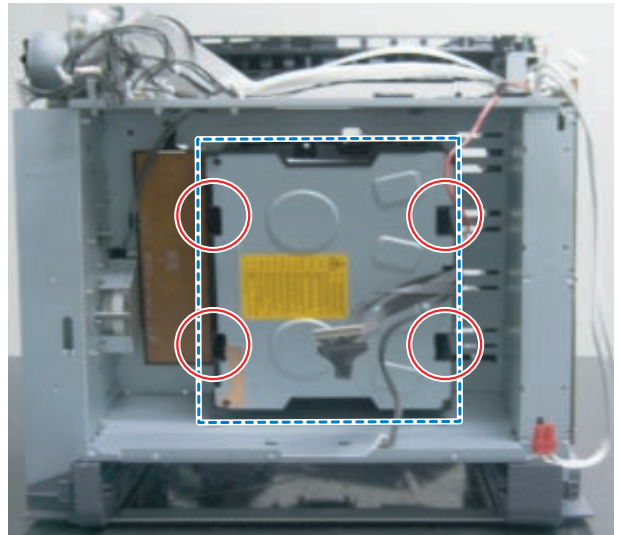
3.4.7 CRUM

1. Remove the CRUM after unlatch the lever.
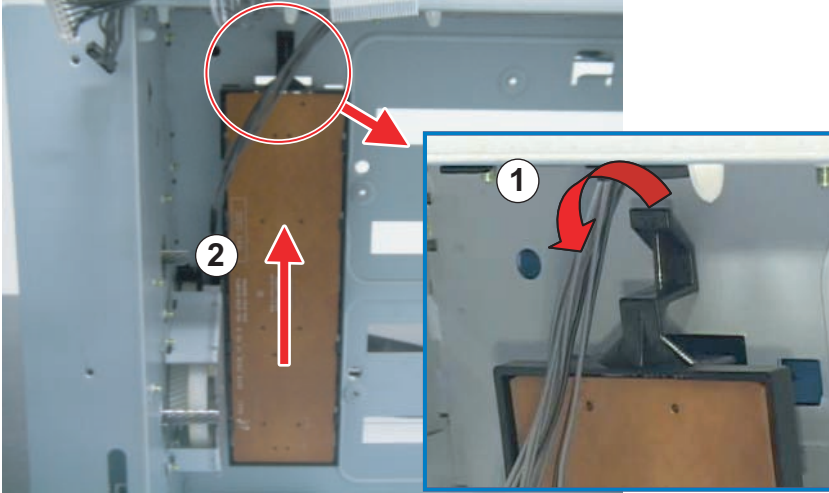
3.4.8 Fuser Drive Unit

1. Remove the 2 screws and release the MEA UNIT-COVER_OPEN.
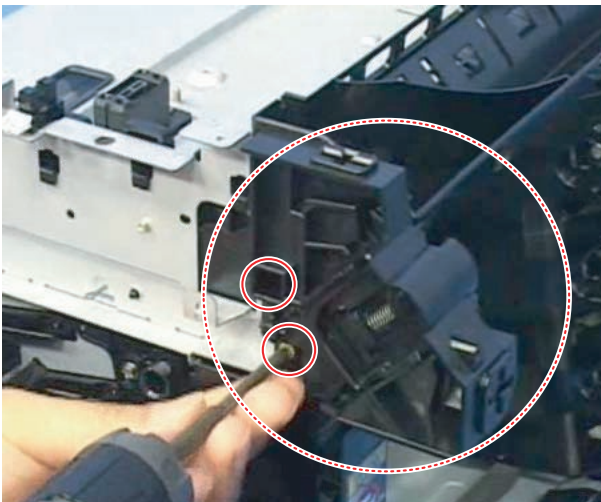
2. Remove the Fuser Duct after remove the 2 screws and the harness.
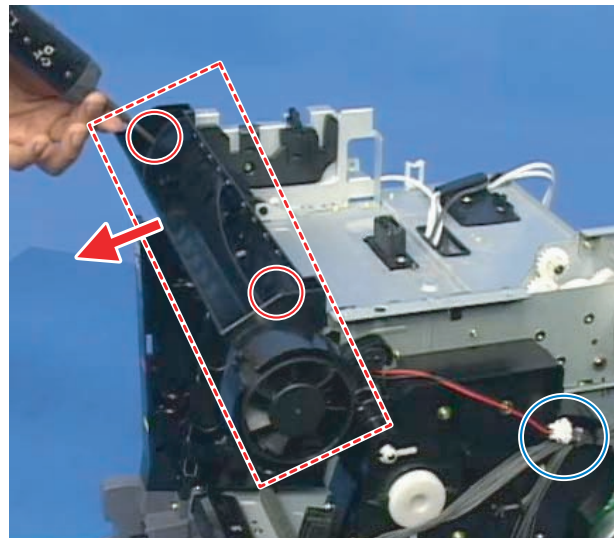
3. Remove the one screw and release the BRACKET-LOCKER PTB R.

5. Remove the Fuser Drive Unit after remove the 4 screws and the harness.
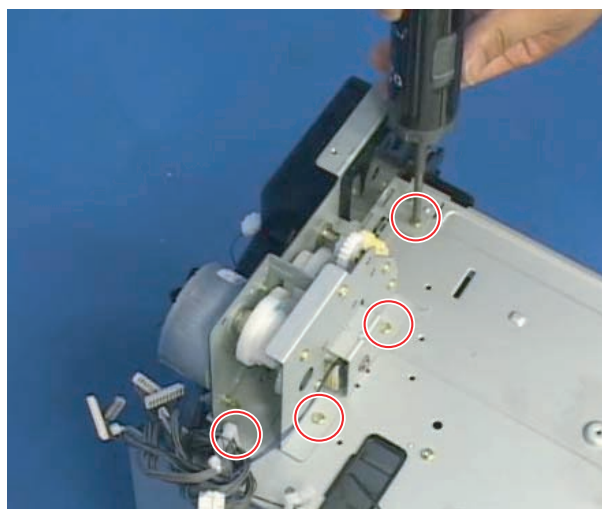
4. Remove the LOCKER_PTB R.
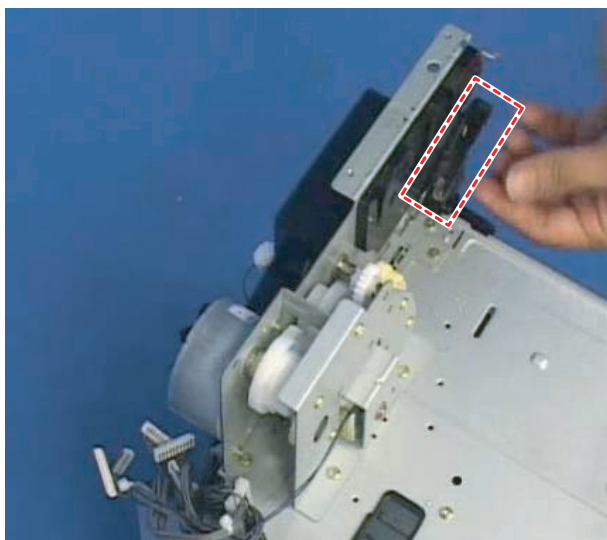
3.4.9 Pick-up Roller

1. Remove the Pick up roller.
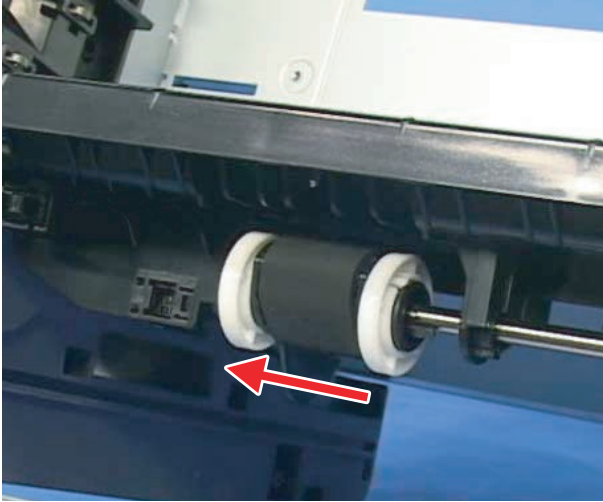
3.4.10 Feed Drive

1. Remove the two screws and unplug the harness.
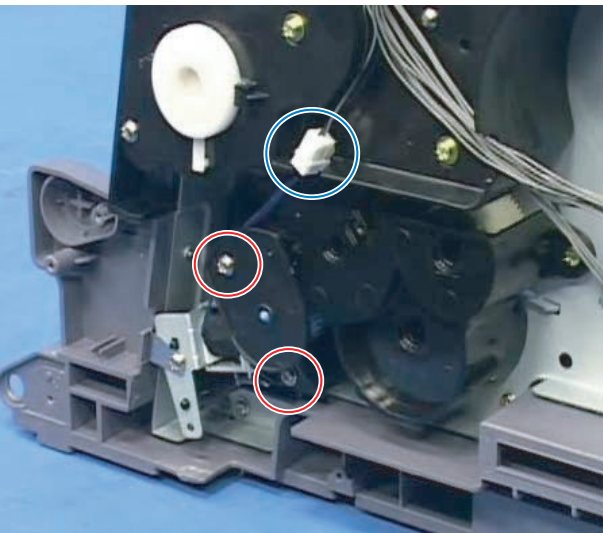
2. Remove the MEA-GEAR PICK UP.

3. Remove the one screw and release the SOLENOID PICK UP.
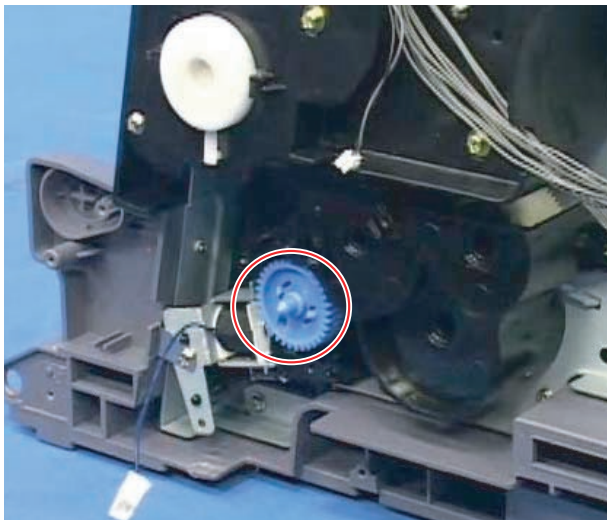
4. Remove the 4 screws, and then release the MEA UNIT-FEED DRIVE.
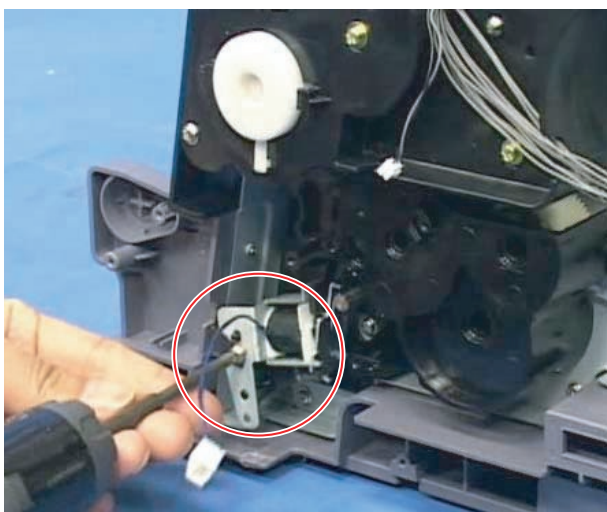
4. Adjustment and Troubleshooting

This chapter describes some of the main service procedures including:
Using the Tech mode; Clearing paper jam and test patterns.
· Tips for avoiding paper jams, Clearing paper jams.
· Solving other problems.

4.1 Alignment and Adjustments

4.1.1 Control Panel
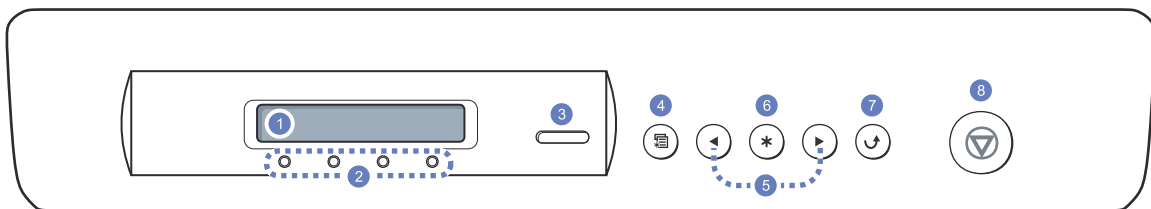
1	**Display:** Shows the current status and prompts during an operation.
2	**Toner colors:** The toner colors shown below the LCD display coworks with display messages.
3	**Status:** Shows the status of your machine.
4	**Menu:** Enters Menu mode and scrolls through the available menus.
5	**Left/right arrow:** Navigates available values by moving to the next or previous options.
6	**OK:** Confirms the selection on the display.
7	**Back:** Sends you back to the upper menu level.
8	**Stop:** Stops an operation at any time.

4.1.2 LED Function

The Status LED on the control panel shows the status of your machine.
See the table below to know your machine's status.

Status" LED		Description
Off		· The machine is off-line.
		· The machine is in Power Save mode. When data is received, or any button is pressed, it switches to on-line automatically.
Green	Blinking	· When the backlight slowly blinks, the machine is receiving data from the computer.
		· When the backlight fast blinks, the machine is printing data.
	On	The machine is on-line and can be used.
Red	Blinking	· A minor error occurs and the machine is waiting an error to be cleared. Check the display message.
		· The toner cartridge is low. Order a new toner cartridge. You can temporarily improve print quality by redistributing the toner.
	On	· A problem has occurred such as a paper jam, opened cover or no paper in the tray, so that the machine can not continue the job. Check the message on the display.
		· The toner cartridge is low, empty, or needs to be installed a new one. See Understanding the toner cartridge messages on the display

4.1.3 Jam Removal

■ **Clearing paper jams**

When a paper jam occurs, Paper Jam appears on the display. Refer to the table below to locate and clear the paper jam.

Message	Location of jam	Message	Location of jam
MP Tray Paper Jam 0	In the multi purpose tray	**Duplex Jam 0 Check Inside**	Inside the machine
Tray 2 Paper Jam 0	In the optional tray	**Duplex Jam 1 Open/Close Door**	In the paper feed area an inside the machine
Paper Jam 1 Open/Close Door	In the paper feed area and inside the machine	**Duplex Jam 2 Check Inside**	Inside the machine and in exit area
Paper Jam 2 Check Inside	Inside the machine and in the exit area		

4.1.3.1 In the paper feed area

If paper is jammed in the paper feed area, follow the next steps to release the jammed paper.

1. Using the handle, completely open the front cover.
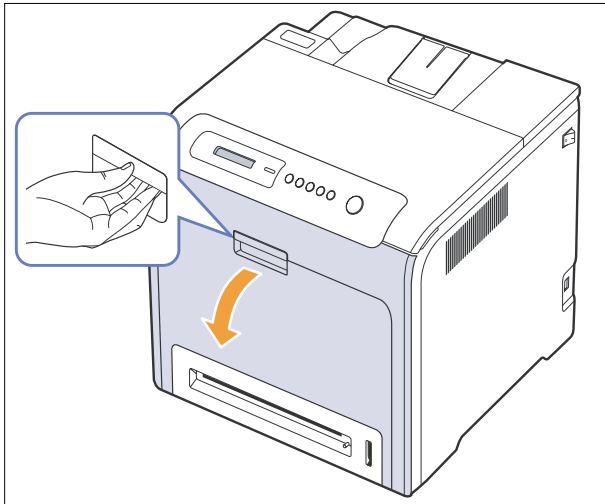
2. Carefully remove the paper by pulling in the direction as shown below.
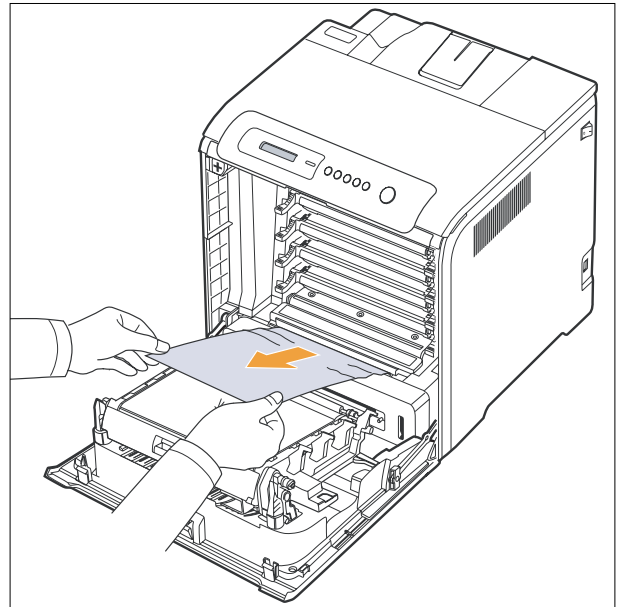
If you cannot find the jammed paper, or if there is any resistance removing the paper, stop pulling, and go to step 3.

3. Close the front cover.

4. Pull the tray open. After you pull it all the way out, lift up the front part of the tray slightly to release the tray from the machine.
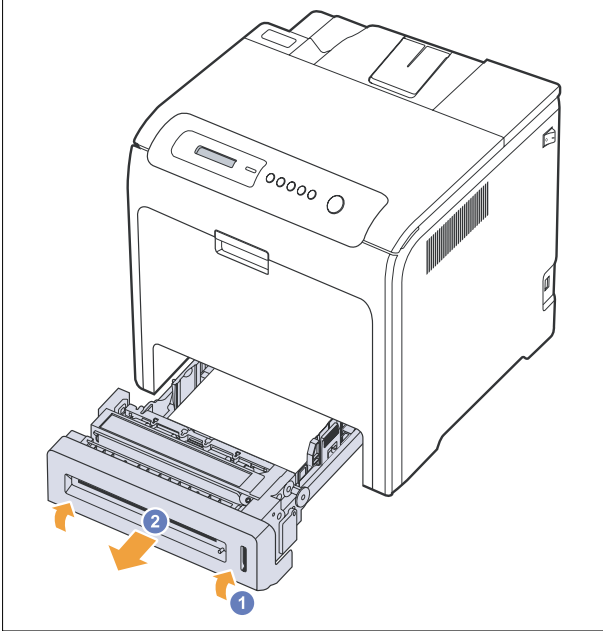
5. Remove the jammed paper by gently pulling it straight out as shown below.
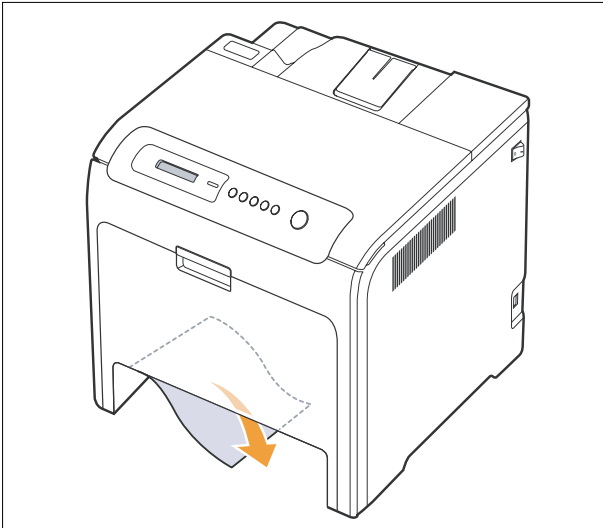
6. To replace the tray, lower the rear edge, align it with the slot, and slide it into the machine.
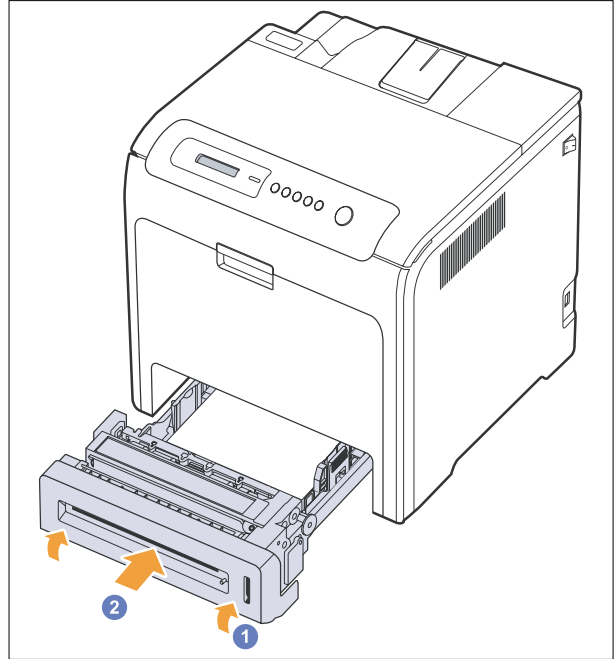
7. After removing the jammed paper, check for paper which may be jammed in other parts of the machine.

8. Close the front cover firmly. The machine will resume printing.

4.1.3.2 In the multi-purpose tray

When you print using the Multi-purpose Tray and the machine detects that there is either no paper or the paper has been improperly loaded, follow the next steps to release the jammed paper.

1. Check if the paper is stuck in the feeding area, and if so, pull it out gently and slowly.
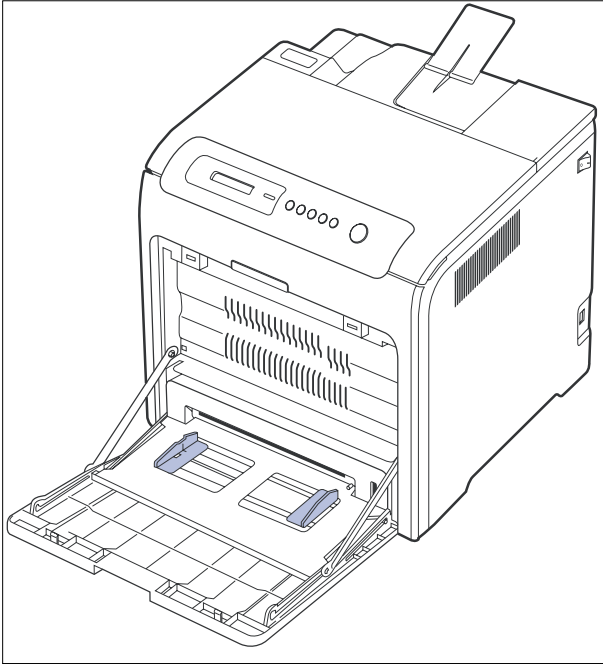
If you cannot find the jammed paper, or if there is any resistance removing the paper, stop pulling and go to step 2.

2. Using the handle, completely open the front cover.
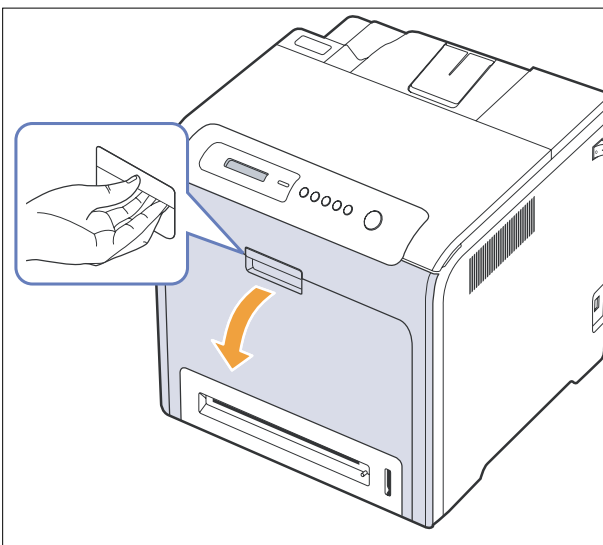
3. Remove the jammed paper by pulling in the direction shown. To avoid tearing the paper, pull it out gently and slowly.
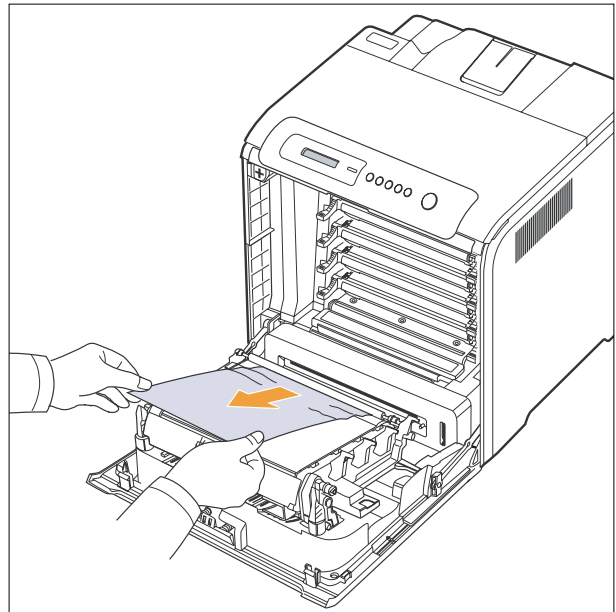
4. Close the front cover firmly. The machine will resume printing.

4.1.3.3 In the fuser unit area

If paper is jammed in the fuser unit area, follow the next steps to release the jammed paper.

1. Open the top cover.
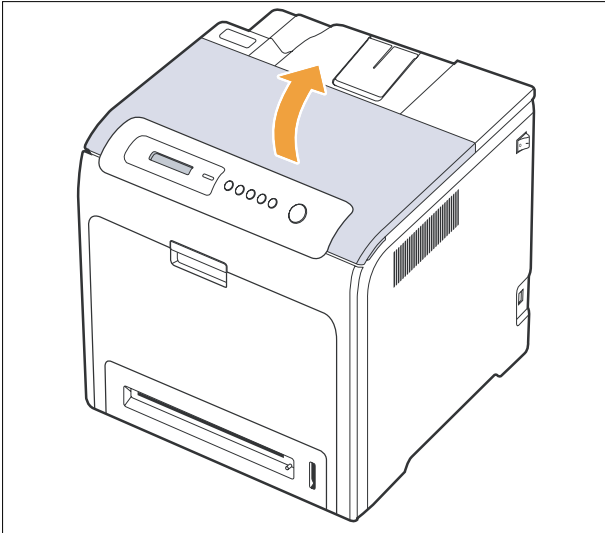
2. Push the levers up.

The fuser is hot!
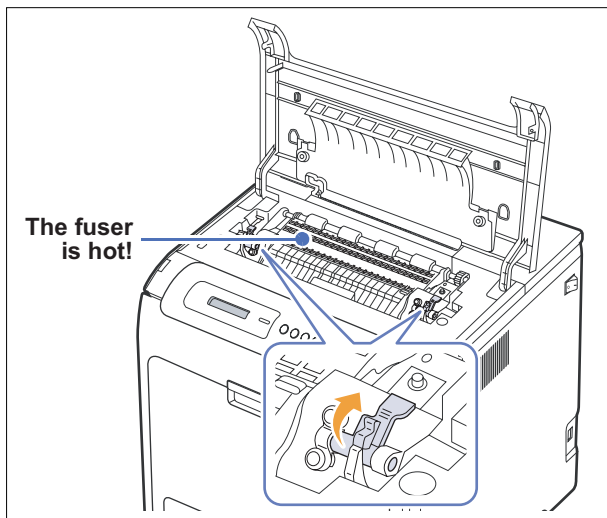
3. Open the inner cover using the handle on it and carefully take the jammed paper out of the machine.
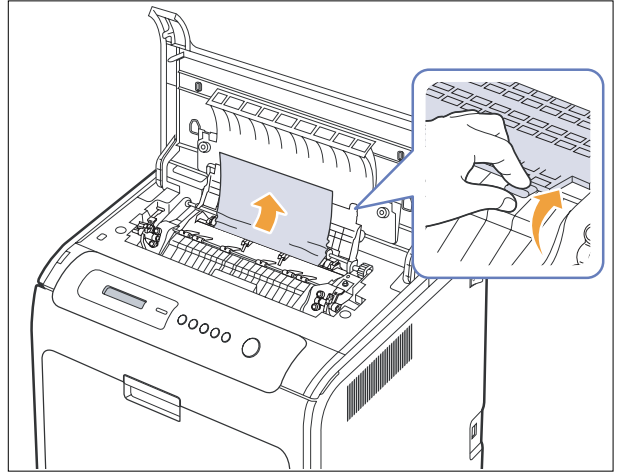
4. Close the inner cover and push the levers down.

5. After removing the jammed paper, check for paper which may be jammed in other parts of the machine.

6. Close the top cover. Make sure that it is securely latched.
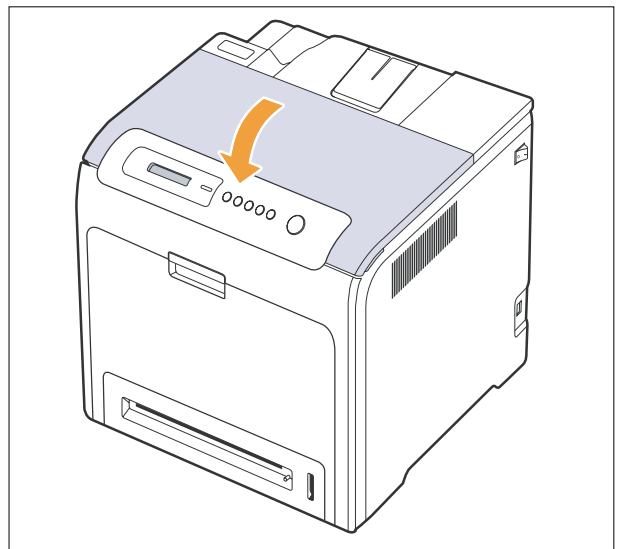
4.1.3.4 In the paper exit area

If paper is jammed in the paper exit area, follow the next steps to release the jammed paper.

1. If a long portion of the paper is visible, pull it straight out.
   Open and close the front cover firmly. The machine will resume printing.

   If you cannot find the jammed paper, or if there is any resistance removing the paper, stop pulling and go to step 2.

2. Open the top cover.
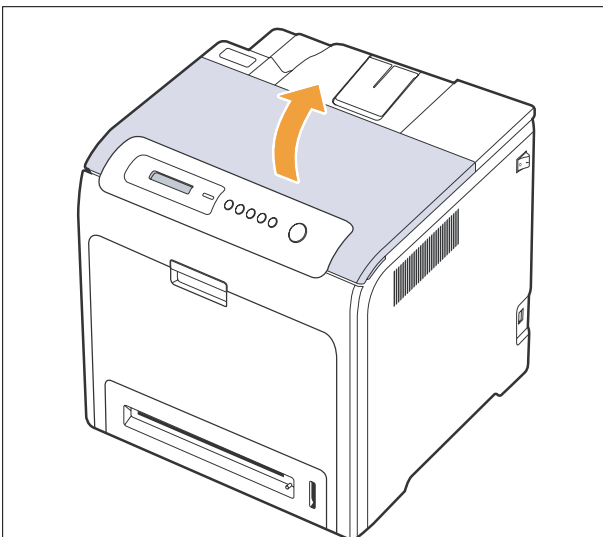
3. Push the levers up.

The fuser is hot!
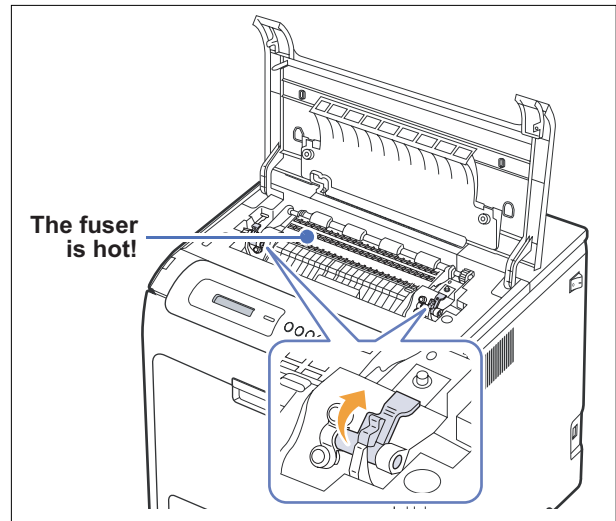
4. Open the inner cover using the handle on it and carefully take the jammed paper out of the machine.
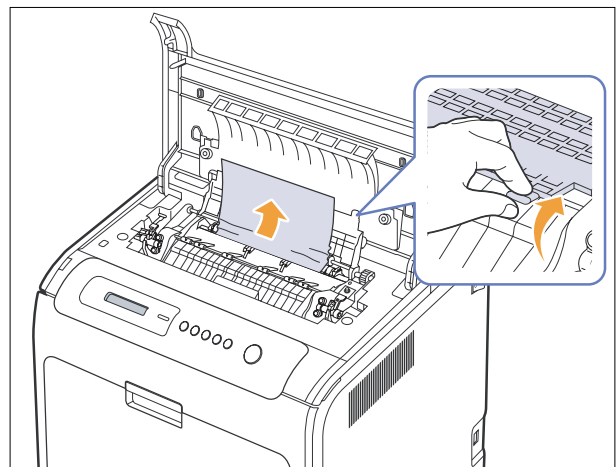
5. Close the inner cover and push the levers down.

6. After removing the jammed paper, check for paper which may be jammed in other parts of the machine.

7. Close the top cover. Make sure that it is securely latched.
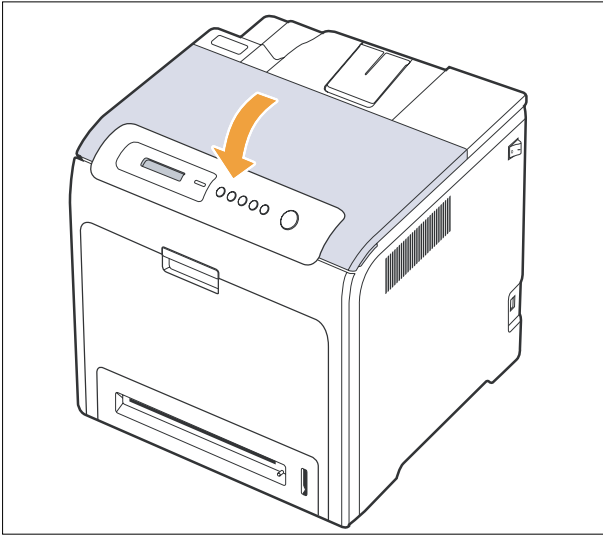
4.1.3.5 In the optional tray

If paper is jammed in the optional Tray, follow the next steps to release the jammed paper.

1. Pull the optional Tray open. After you pull it all the way out, lift up the front part of the tray slightly to release the tray from the machine.

2. If you see the jammed paper, remove the paper from the machine by gently pulling it straight out as shown below.
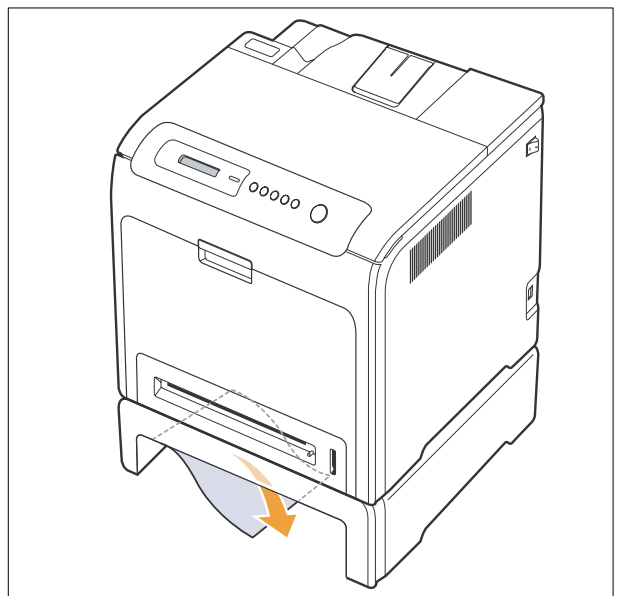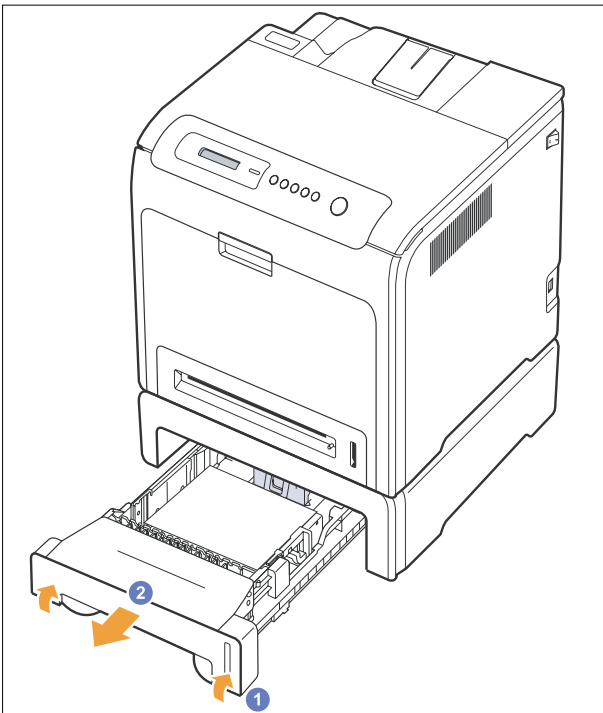
3. Slide the tray back into the machine and close the two jam covers.

4. Open the front cover.
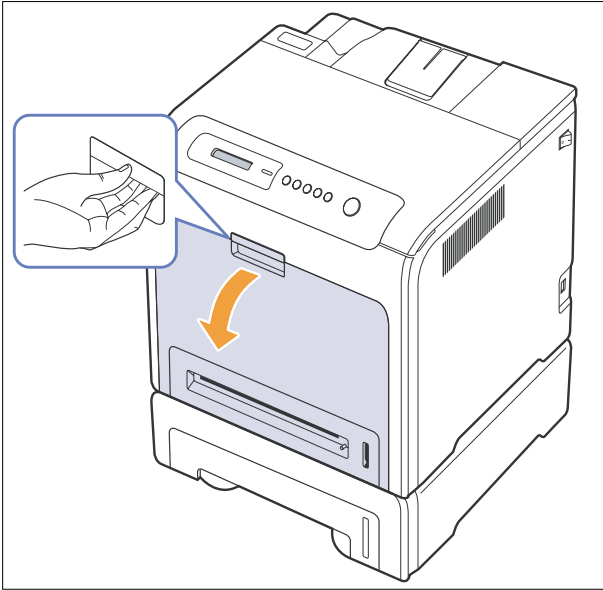
5. Pull the jammed paper out in the direction shown. To avoid tearing the paper, pull it out gently and slowly.
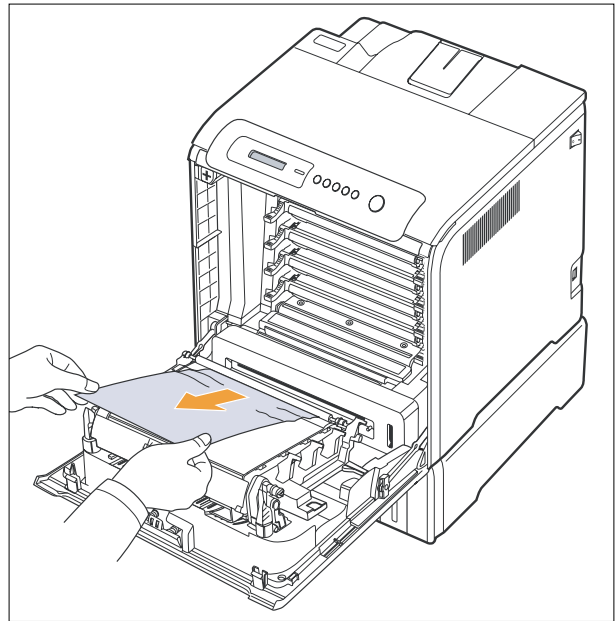
6. Close the front cover firmly. The machine will resume printing.

4.1.4 System setup

4.1.4.1 Accessing to menus

The next steps are the example to print the menu map of this machine, and they are the general way to select menu and configure your machine.

1. Make sure your machine is properly connected all the necessary cables, and turn on the machine.

2. Press the Menu button until you see the menu (ex. Information) you want on the bottom line of the display.

3. Press the Enter button to access the menu.

4. Press the Left/right arrow buttons until the menu item (ex. Menu Map) you want displays on the bottom line.

5. Press the OK button to confirm the selected item.

6. Press the Left/right arrow buttons until the menu item (ex. Print?) you want displays on the bottom line.

7. Press the OK button to process your selection, save your input or selection.
   An asterisk (*) appears next to the selection on the display, indicating that it is now the default.

8. To exit the menu, press the Back button repeatedly, or the Stop button.

4.1.4.2 Menu overview

Information

Menu Map
Configuration
Demo Page
PCL Font List
PS Font List

Layout

Orientation
Simplex Margin
Duplex
Duplex Margin

Graphic

Resolution
Darkness

Paper

Copies
Paper Size
Paper Type
Paper Source
Tray Chaining

System Setup

Language
Power Save
Auto Continue
Altitude Adj.
Auto CR
Job Timeout
Maintenance
Clear Setting

Emulation

Emulation Type
Setup

Network Setup

TCP/IP
Ethernet Speed
Clear Setting
Network Info

Color

Calibration
Custom Color
Auto Color Reg.

1) Menu - Information

✻ **This menu contains information pages that you can print to give details about the printer and its configuration**

⇨ Prints Configuration, Menu Map, Demo Page, PCL Font List, PS3 Font List

Information
Menu Map
Configuration
Demo Page
PCL Font List
PS3 Font List
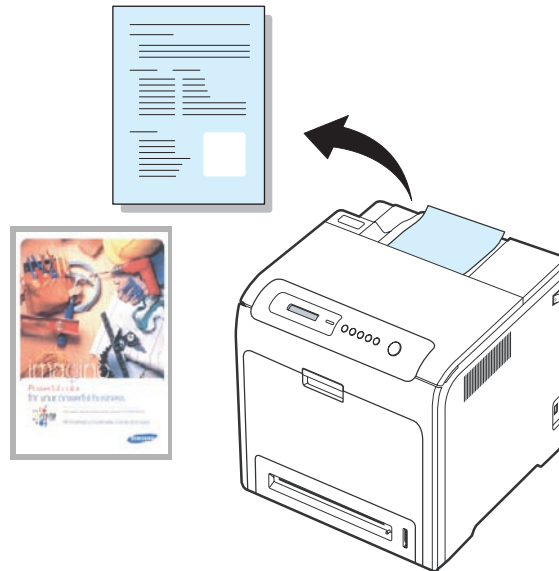
2) Menu - Layout

✻ **This menu allows you to adjust the Layout setting**

· Orientation ⇨ This menu allows to select the direction in witch information is printed on a page. (Portrait, Landscape)

· Simplex Margin ⇨ Set the margin of print materials for one-sided printing.

· Duplex ⇨ To print on both sides of paper, choose the binding edge. (Off, Long Edge, Short Edge)

· Duplex Margin ⇨ This menu allows set the margins for double-sided printing.

Layout
Orientation
Simplex Margin
Duplex
Duplex Margin

3) Menu - Paper

- Copies ⇨ This menu allows select the maximum amount of copies.

- Paper Size ⇨ This menu allows select the default paper size.

- Paper Type ⇨ This menu allows select the default paper type for the print media.

- Paper Source ⇨ This menu allows the tray to process the print job. If you select "Auto", your machine supplies the paper from the multi-purpose tray first, than the tray1 and tray2 for the last. So if any tray is empty, then the machine try to search th paper from the next available tray.

- Tray Chaining ⇨ When paper source is selected any other value except "Auto" and the selected tray is empty, the machine to automatically print from other trays.
But this menu item is set to "Off", the machine does not work until people insert paper into the specified tray.

Paper
Copies
Paper Size
Paper Type
Paper Source

4) Menu - Graphic

- Resolution ⇨ This menu can select the default resolution. If the resolution is high, the clarity of the printouts is shaper, but the print time may take longer. (Draft, Normal, Best)

Graphic
Resolution

5) Menu - System Setup

✳ **Use the Setup menu to configure a variety of printer features**

•LCD Language ⇨ Changes languages on LCD

- EXP : 17 languages (English, Czech, Danish, Dutch, Finnish, French, German, Hungarian, Italian, Norwegian, Polish, Portuguese B, Portuguese E, Russian, Spanish, Swedish, Turkish)

- KOR, CHN : 3 Languages (English, Korean, Chinese)

•Power Save ⇨ Sets how long the printer waits before going to power save (Default 15Min)

•Altitude Adj. ⇨ Optimize the print quality according to your altitude (Normal, High1, High2, High3)

•Auto CR ⇨ This option allows you to append the required carriage return to each line feed, which is useful to the UNIX user or DOS user. (LF, LF+CR)

•Job Timeout ⇨ Sets the amount of time a single print job is active before if must print. The machine handles incoming data as a single job, if it comes in within the specified time. When an error occurs while processing data from the computer and the data flow stops, the machine waits the specified amount of time and then cancels printing if data flow does not resume.

•Maintenance
- Check Others : Allows you to view the total number of pages printed with each of the consumable items such as Transfer Belt, Fuser, MP/Tray1/Tray2 Pick-up Rollers
- Alarm Shortage : Determines how the printer behaves when consumable items run low

•Clear Setting ⇨ Allows you to restore the printer's factory default settings

Setup
Language
Power Save
Auto Continue
Altitude Adj.
Auto CR
Job Timeout
Maintenance
Clear Setting

6) Menu - Emulation

- Emulation Type ⇨ Languages from the computer and the machine are different, the printing quality can not be confirmed. It is recommended to set this menu to °∞Auto°± to switch the proper language.

- Setup
    - PCL : This Menu allows the PCL emulation configuration. You can set the font type, symbol type, lines per page and font size.
    - Print PS Error : This menu provides you with the Print PS Error menu item. You can select whether or not your printer prints an error list when a PS error occurs.

Emulation
Emulation Type
Setup
- PCL
- PostScript

7) Menu - Color

∗ **This menu allows you to adjust the color setting**

- Custom Color ⇨ Adjust the Contrast of each color (-5 ~ 5)

- Auto Color Reg ⇨ Adjust the position of color texts or graphics to match the position of the printed colors to those on your screen

ACR Pattern

Color
Custom Color
Auto Color Reg
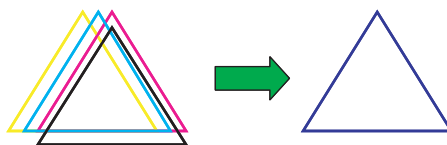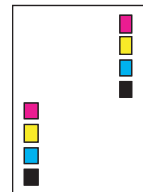
Note : ACR can be automatically executed in the following situations :

1) Power On
2) Cover Open -> Close
3) Waking up from sleeping mode
4) After printing every 100 or 50 pages
5) ...

NOTE : After some part of this printer was replaced, you must do ACR setting.

How to use ACR manually.

1. Press "Menu" key until you see "Color" on display.
2. Press "OK" Key.
3. Press "Left/Right" key until you see "Auto Color Regi " on display.
4. When you press "OK" key, ACR will be performanced.

8) Menu - Network

✳ This menu lets you configure the network interface card

- ・TCP/IP ⇨ If you are using the TCP/IP protocol for networking, select this menu.
  (DHCP, BOOTP, Static)

- ・Ethernet Speed ⇨ Set the communication speed for ethernet connection.

- ・Clear Setting ⇨ Clear the network setting.

- ・Network Info. ⇨ Prints Network Configuration Page.

Network
TCP/IP
Ethernet Speed
Clear Setting
Network Info
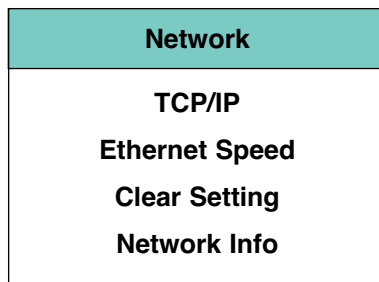
9) Network Application - SWS

✳ SWS (SynchThru Web Service)
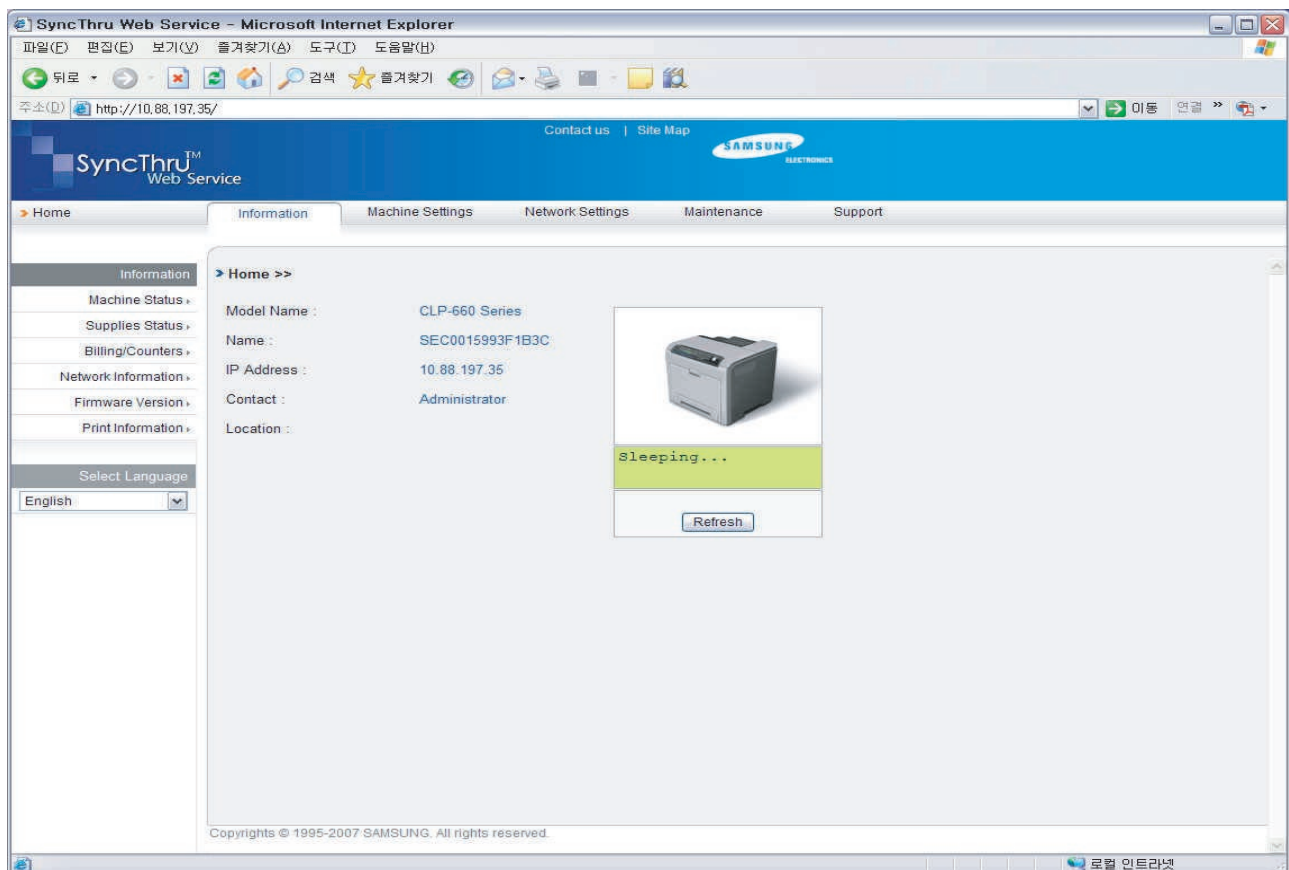
✳ **Features**

· The SWS is an upgraded version of EWS(Embedded Web Service).

· By entering the IP address of your printer, you can use the SWS.

· Printer/Network settings can be easily changed by using SWS.

· Printer/Network status can be monitored by using SWS.
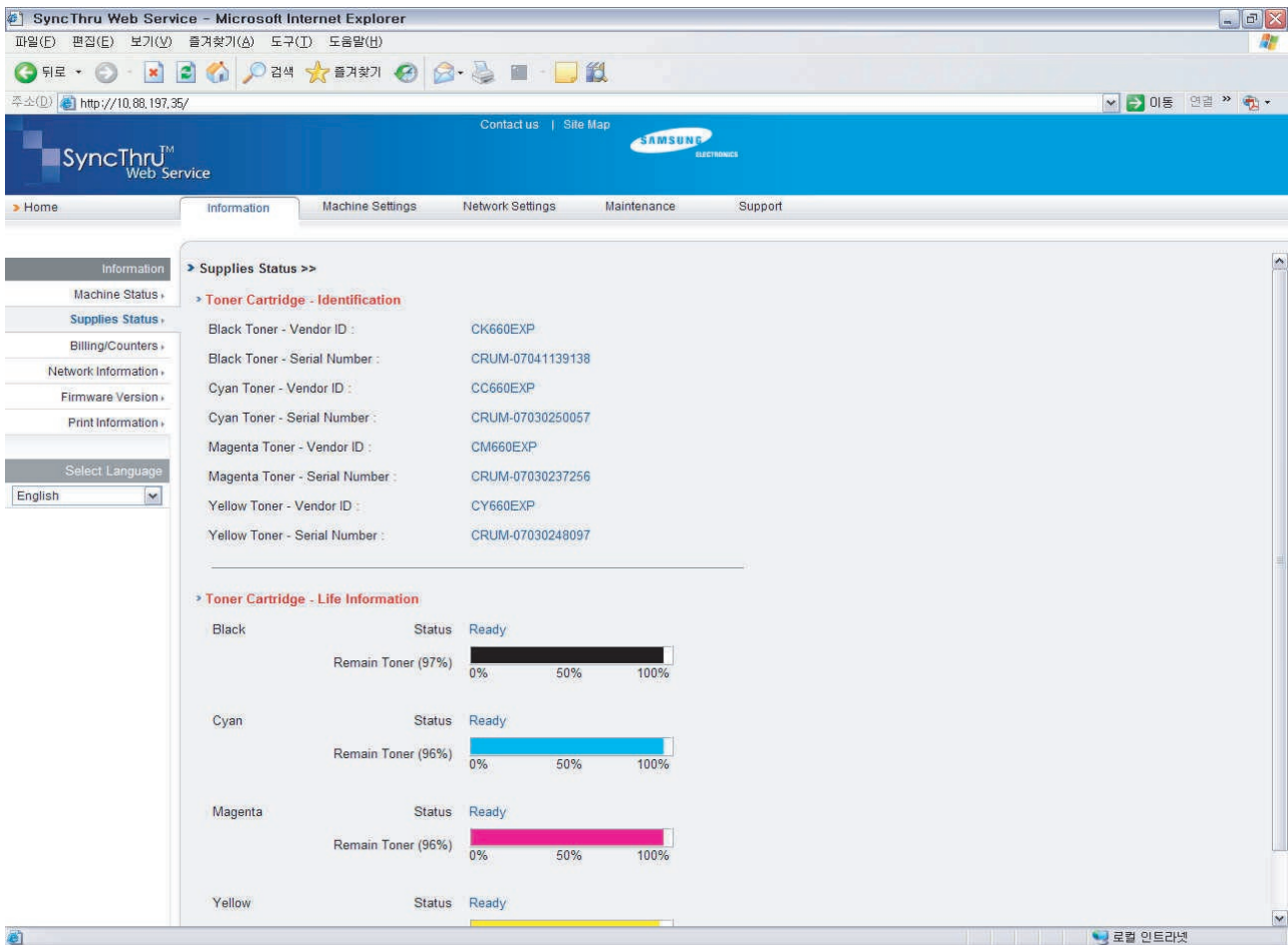
10) Network Application - SWAS

＊ SWAS (SynchThru Web Admin Service)
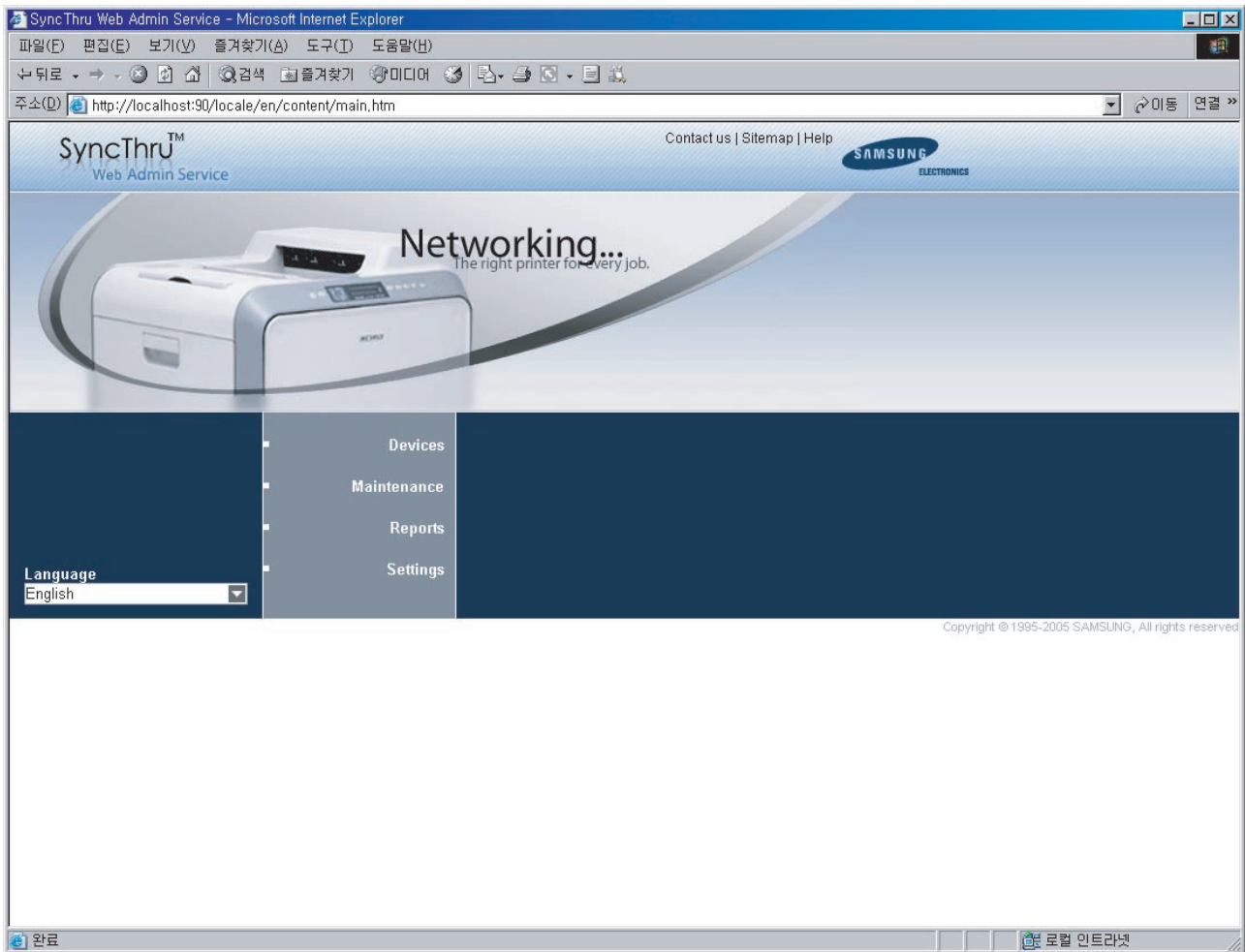
＊ **Features**

· SWAS was implemented based on the Printer MIB-II (RFC3805).

· Network Printer Administration can be conveniently made by using SWAS.

· Remote Diagnostics can be accomplished by using SWAS.

· The status of Samsung Network Printers (including CLP-660, CLP-610, CLP-300N, ML-3561N, etc) can be monitored by using SWAS.
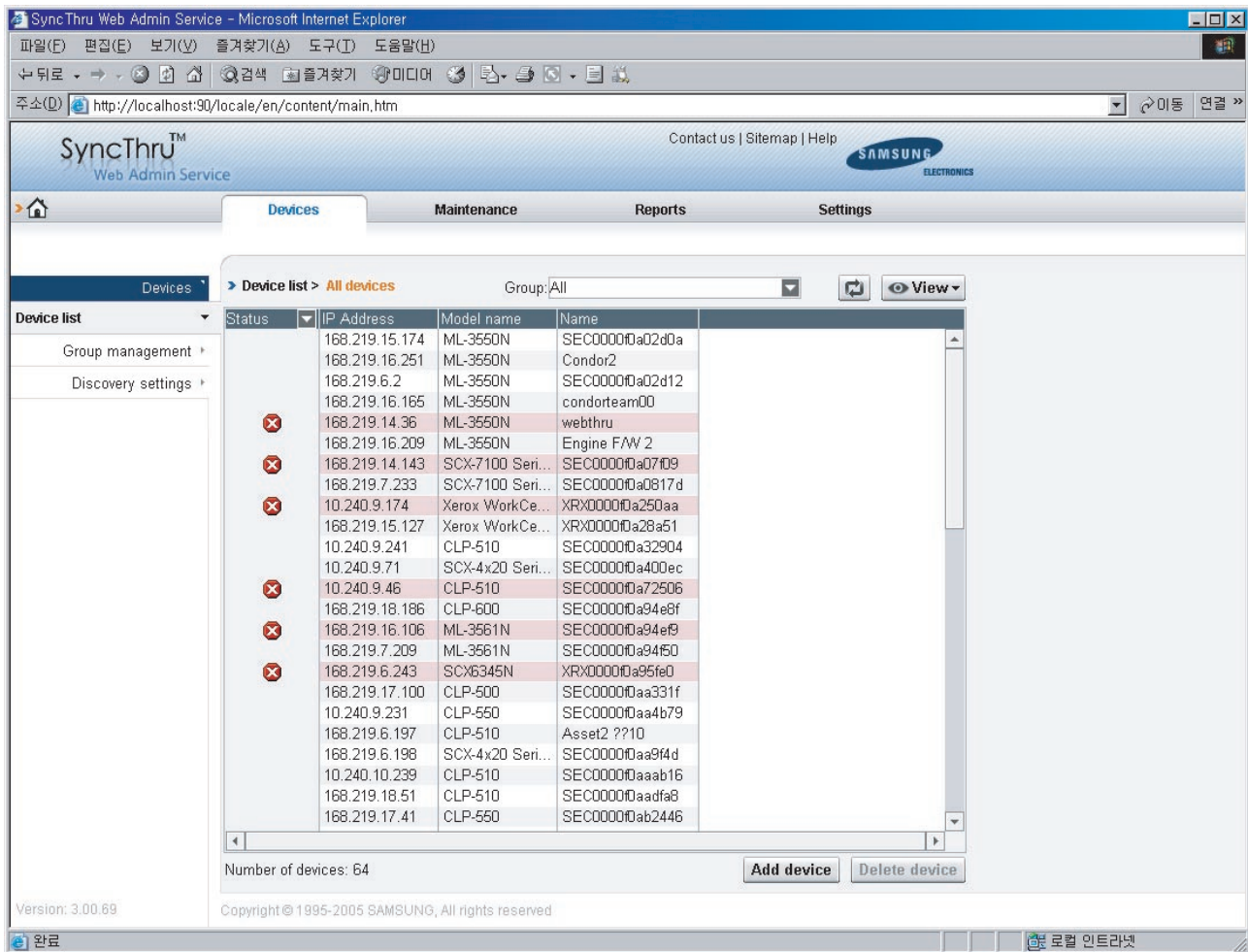
11) Network Application - SWAS

＊ **Features**

· The status of each printer can be monitored in detail by using SWAS.

12) Network Application - ENS, ATOS

✳ **ENS (Email Notification System)/ATOS (Automatic Toner Ordering System)**

・ ENS sends the specified users the email reports on the printer status, alert, and history.

・ CLP-610ND/660N/660 supports ENS.

・ ENS can be configured by using SWS.

・ ATOS sends toner ordering emails automatically by using ENS.
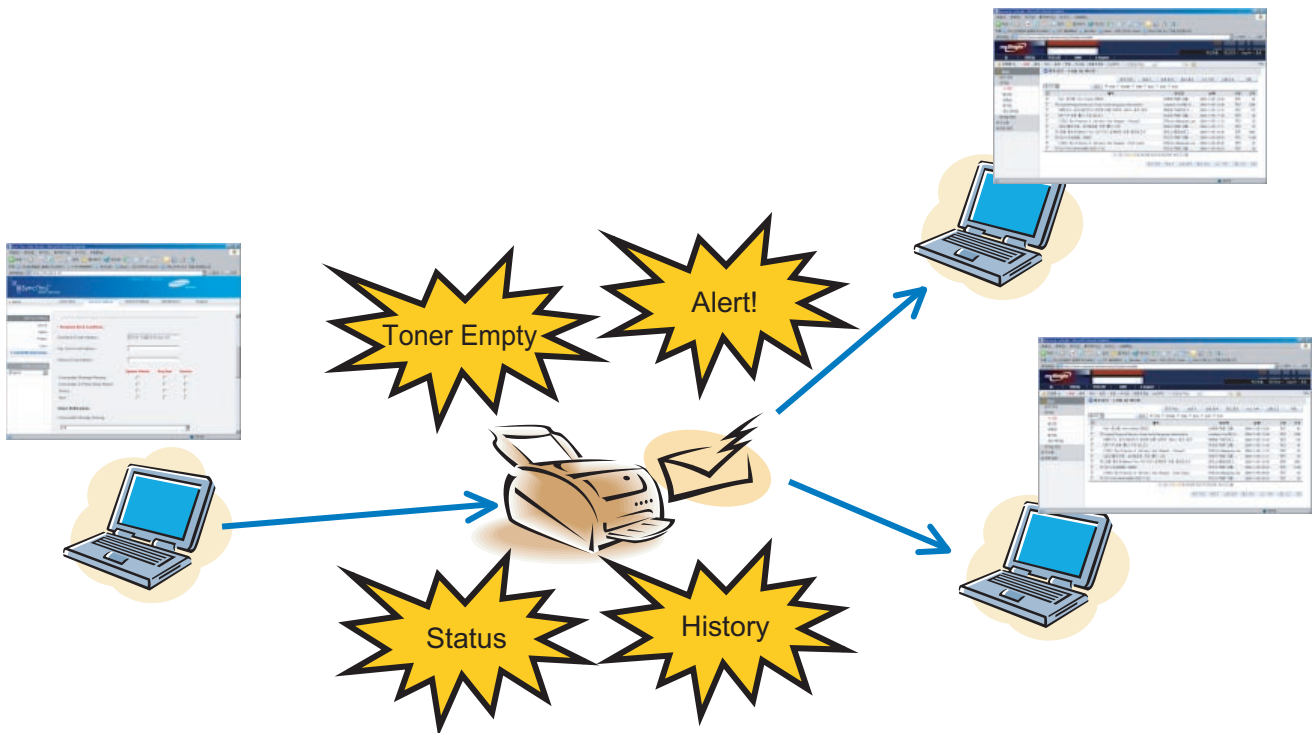
4.1.4.3 Maintenance

This chapter provides information for maintaining your machine and the toner cartridge.

This chapter includes:
• Printing a machine configuration report
• Printing a network report
• Monitoring the supplies life
• Clearing the toner empty message
• Cleaning your machine
• Maintaining the cartridge
• Redistributing toner
• Replacing the toner cartridge
• Replacing the Paper Transfer Belt
• Maintenance Parts
• Managing your machine from the website

■ Printing a machine configuration report

You can print the machine's information and job report.

1. Press the Menu button on the control panel until you see Information on the bottom line of the display.
2. Press the OK button.
3. Press the Left/right arrow button until Configuration displays.
4. Press the OK button.
5. The display shows Print?, then press the OK button to print the configuration report.

■ Printing a network report

You can print the machine's network information such as protocol type you set, IP address and so forth.

1. Press the Menu button on the control panel until you see Network Setup on the bottom line of the display.
2. Press the OK button.
3. Press the Left/right arrow button until Network Info. displays.
4. Press the OK button.
5. The display shows Print?, then press the OK button to print the configuration report.

■ Monitoring the supplies life

If you want to view the supply life indicators, follow the next step.

1. Press the Menu button on the control panel until you see System Setup on the bottom line of the display.
2. Press the OK button.
3. Press the Left/right arrow button until Maintenance displays.
4. Press the OK button.
5. Press the Left/right arrow button until Supplies Life displays.
6. Press the OK button.
7. The display shows two options as you press the Left/right arrow button.
   • Total : displays the total number of pages printed.
   • Toner Remains: displays how much toner remains in the cartridge.
8. When you select the option, press OK to browse the life.

■ Clearing the toner empty message

When you want to set the machine not to show the toner empty and replace the toner message, follow the next steps.

1. Press Machine Setup on the control panel.
2. Press Admin Setting. When the login message pops up, then enter password and press OK.
3. Press the General tab > Ignore Toner Empty Status.
4. Press On.
5. Press OK.

■ Cleaning your machine

To maintain print quality, follow the cleaning procedures below each time the toner cartridge is replaced or if print and scan quality problems occur.

Cleaning the outside

Clean the machine cabinet with a soft lint-free cloth. You can dampen the cloth slightly with water, but be careful not to let any water drip onto or into the machine.

Cleaning the inside

Contact a service representative to clean the inside of the machine.

Cleaning the inside

Contact a service representative to clean the inside of the machine.

Cleaning the paper transfer belt

The cleaning the paper transfer belt within this machine is recommended for its printing quality.
The cleaning period is best once a year or once 10,000 pages printing.

1. Prepare a soft lint-free cloth.

2. Turn off the machine.

3. Unplug the power cable.

4. Open the front cover.
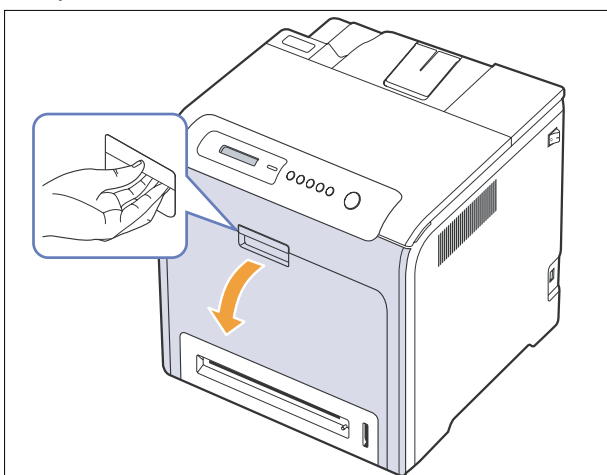
5. Wipe the surface of the paper transfer belt.
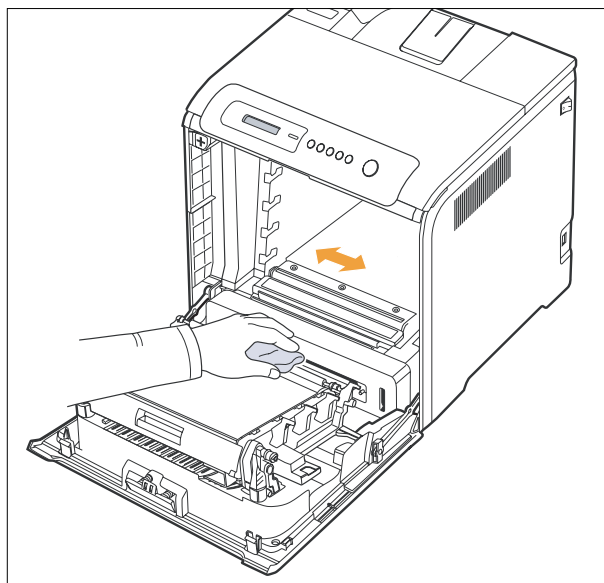
6. Close the front cover.

7. Plug the power cable and turn the machine on.

■ Maintaining the cartridge

Toner cartridge storage

To get the most from the toner cartridge, keep the following guidelines in mind:

・Do not remove the toner cartridge from its package until ready for use.
・Do not refill the toner cartridge. The machine warranty does not cover damage caused by using a refilled cartridge.
・Store toner cartridges in the same environment as your machine.
・To prevent damage to the toner cartridge, do not expose it to light for more than a few minutes.

Expected cartridge life

The toner cartridge yield depends on the amount of toner that print jobs require. Expected Cartridge Life is 20,000 standard pages in accordance with the ISO/IEC standard (supplied with the machine is standard pages). Average CMY(K) cartridge yield for the high yield cartridge is 5000(5500) standard pages in accordance with the ISO/IEC 19798. Average CMY(K) cartridge yield for the standard yield cartridge is 2000(2500) standard pages. The actual number may also be different depending on the print density of the pages you print on, and the number of pages may be affected by operating environment, printing interval, media type, and media size. If you print a lot of graphics, you may need to change the cartridge more often.

■ Redistributing toner

When a toner is low, faded or light areas may appear. It is possible that colored images may be printed with incorrect colors due to flawed mixing of toner colors when one of the colored toner cartridges is low on toner. You can temporarily improve print quality by redistributing the toner.

• The toner related message telling that the toner is low may appear on the display.

• SmartPanel program window appears on the computer telling you which color cartridge is low on toner.

1. Using the handle, completely open the front cover.
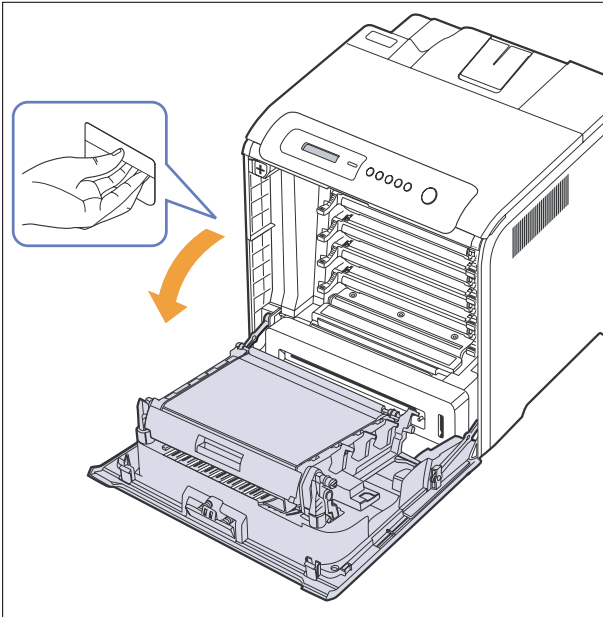
2. Grasp the handles on the toner cartridge and pull to remove the cartridge from the machine.
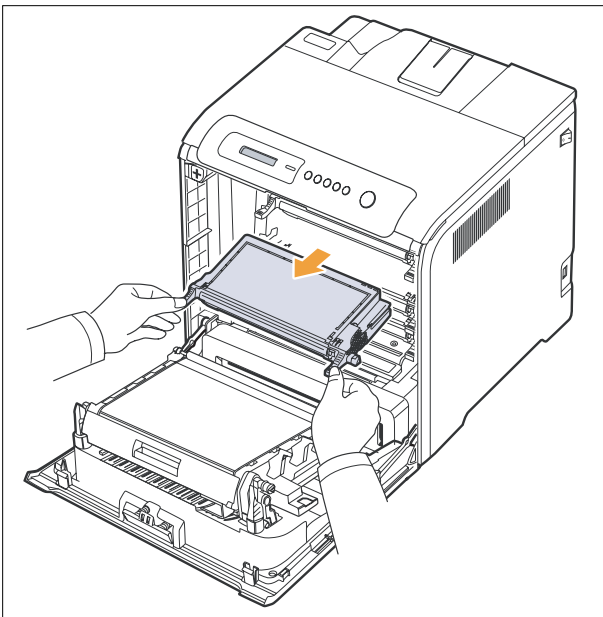
3. Holding both handles on the toner cartridge, gently rock it from side to side to redistribute the toner.
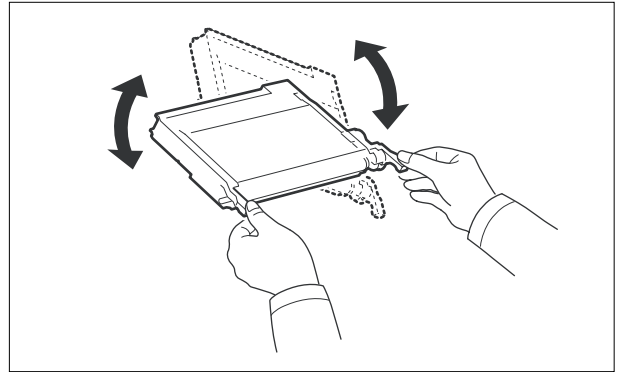
4. Slide the toner cartridge back into the machine.
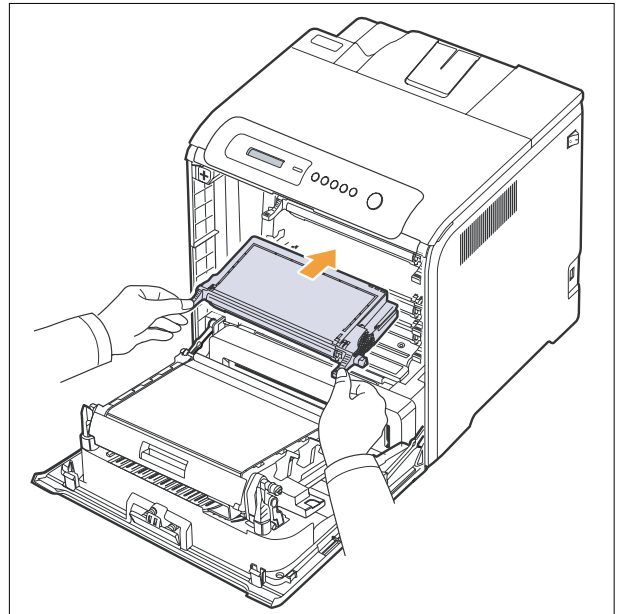
5. Close the front cover. Make sure that the cover is securely latched.

■ Replacing the toner cartridge

The machine uses four colors and has a different toner cartridge for each one: yellow (Y), magenta (M), cyan (C), and black (K).

• The status LED and the toner related message on the display indicate that the toner cartridge should be replaced with each individual toner cartridge according to its color.

• The machine stops printing. Incoming faxes are saved in memory.

At this stage, the toner cartridge needs to be replaced. Check the type of the toner cartridge for your machine.

1. Turn the machine off, then wait a few minutes for the machine to cool.

2. Using the handle, completely open the front cover.
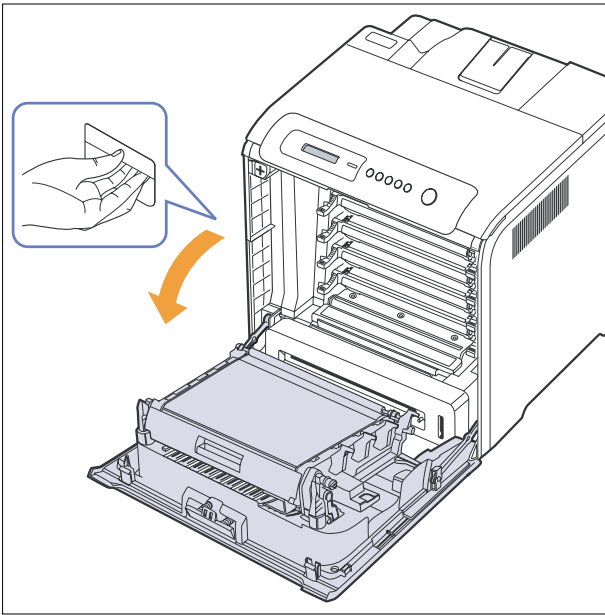
3. Grasp the handles on the toner cartridge and pull to remove the cartridge from the machine.
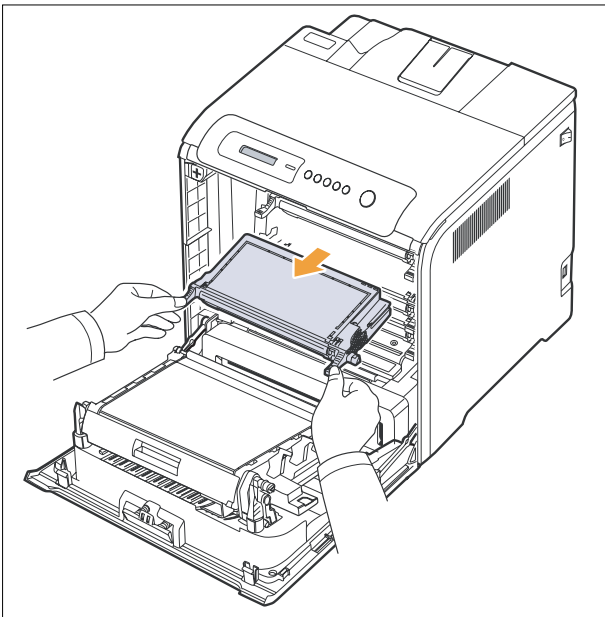
4. Take a new toner cartridge out of its package.
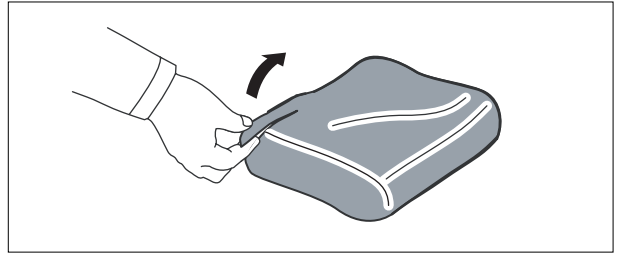
5. Holding both handles on the toner cartridge, gently rock it from side to side to evenly distribute the toner.
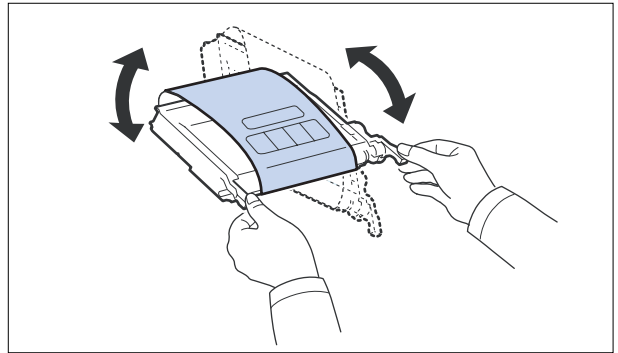
6. Place the toner cartridge on a flat surface, as shown, and remove the paper covering the toner cartridge by removing the tape.
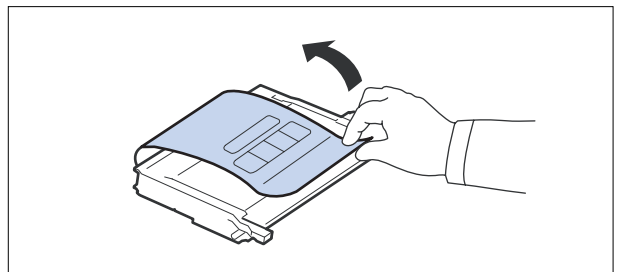
7. Make sure that the color of the toner cartridge matches the color slot and then grasp the handles on the toner cartridge. Insert the cartridge until it clicks into place.
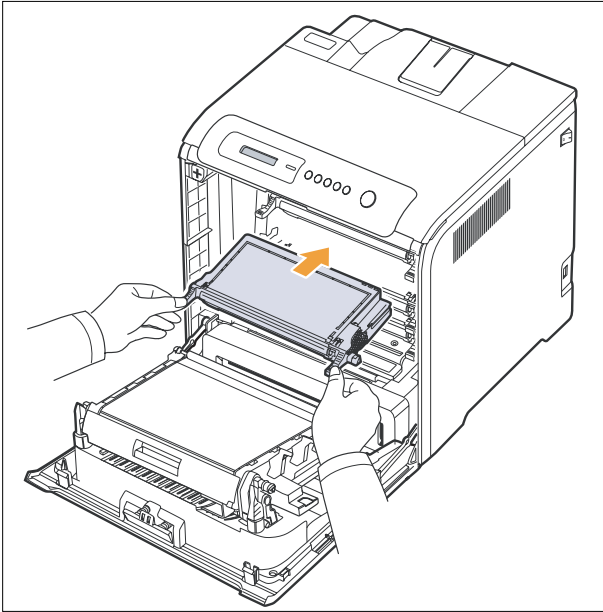
8. Close the front cover. Make sure that the cover is securely latched, and then turn the machine on.

■ Replacing the Paper Transfer Belt

The life of the paper transfer belt is approximately 50,000 black and color pages. When the life span of the paper transfer belt, you have to replace it.

- The transfer belt related message appears on the display telling it's replacement.
- SmartPanel program window appears on the computer telling you the paper transfer belt needs to be replaced.

1. Turn the machine off, then wait a few minutes for the machine to cool.

2. Using the handle, completely open the front cover.
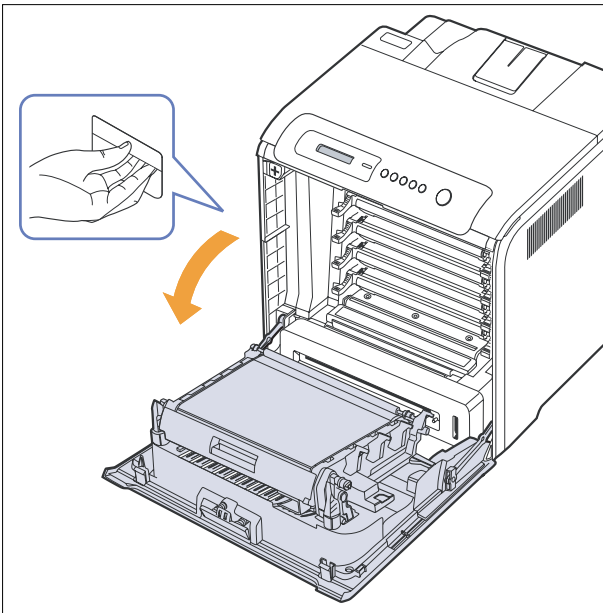
3. Press the green release handle to release the paper transfer belt. Holding the handle on the paper transfer belt, lift it out of the machine.
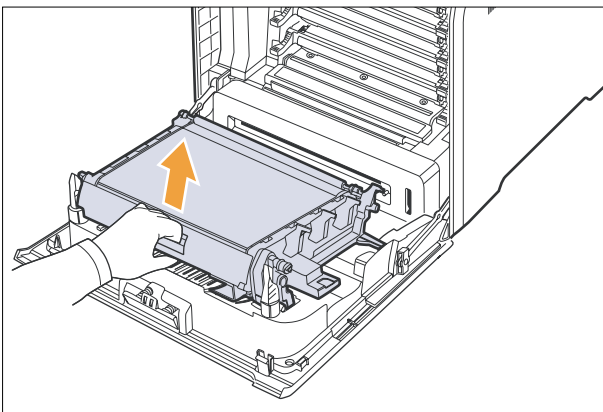
4. Take a new paper transfer belt out of its package.
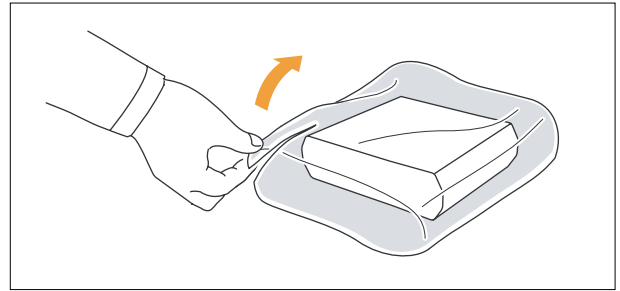
5. Remove the paper covering the paper transfer belt by removing the tape.

6. Holding the handle on the new paper transfer belt, align it with the slots on the inside of the front cover.
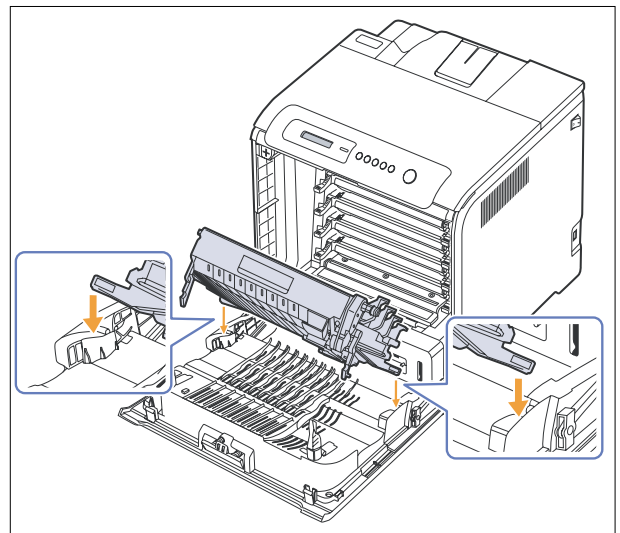
7. Lower the paper transfer belt until it is parallel with the front cover and firmly seated.
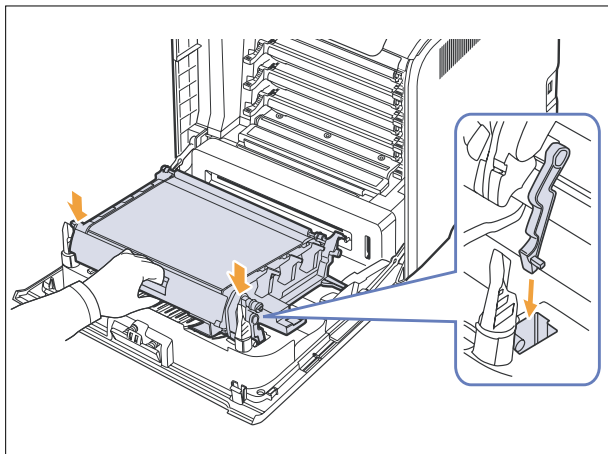
8. Close the front cover firmly.

9. Turn the machine on.

■ Managing your machine from the website

If you have connected your machine to a network and set up TCP/IP network parameters correctly, you can manage the machine via Samsung's SyncThru Web Service, an embedded web server. Use SyncThru Web Service to:

• View the device information and check its current status.

• Change TCP/IP parameters and set up other network parameters.

• Change the printer properties.

• Set the machine to send email notifications and update you on the machine's status.

• Get support for using the machine.

To access SyncThru Web Service:

1. Start a web browser, such as Internet Explorer, from Windows.

2. Enter the machine IP address (http://xxx.xxx.xxx.xxx) in the address field and press the Enter key or click Go. Your machine's embedded website opens.

4.1.4.3 Sample Pattern

This product provides several printable test patterns for maintenance purposes. These patterns can be used to aid the diagnosis of print quality problems.

■ Printing a Demo Page

1. Press Menu on the control panel until you see Information on the bottom line of the display.
2. Press OK and press the left/right arrow until Demo page display.
3. Press OK.
4. The display shows Print?, then press OK to print the Demo page.

■ Printing a Configuration Page

You can print a configuration page from the printer's control panel. Use the configuration page to view the current settings, to help troubleshoot problems.

1. Press Menu on the control panel until you see Information on the bottom line of the display.

2. Press OK and press the left/right arrow until Configuration displays.

3. Press OK

4. The display shows Print?, then press OK to print the configuration report.

SAMSUNG Color Laser Printer CLP-660 Series

[Configuration]

Magenta Cartridge Information (Cont.)

Model ID : CLP-M660A
Capacity : 2K
Supplier : SAMSUNG(EUROPE)
Product Date : 2007.07
Serial-No : CRUM-07072653288

Yellow Cartridge Information (Cont.)

Model ID : CLP-Y660A
Capacity : 2K
Supplier : SAMSUNG(EUROPE)
Product Date : 2007.07
Serial-No : CRUM-07072653710

Transfer Belt Information

PTB Remaining : 100 %
Page Counts : 282
Company ID : SAMSUNG
Supplier ID : CT660EXP
Back up Supplier : CT660EXP
Reset PTB : 0
Page Count after Replace : 0
Model ID : CLP-T660B
Duplex : Support
Supplier : SAMSUNG(EXPORT)
Product Date : 2007.07
Serial-No : CRUM-07072561821

ACR Result Page (0)

Result : Signal Noise Error
ACR Kind : Menu ACR
Time in ACR : 261 min
Page Count : 41 pages
PTB Count : 281 pages
Custom Color : 5, 5, 5, 5
Altitude : Plain
Temp : Inner-34, Outer-28, Humidity-106
Y-Data : 210, 210, 205, 200
X-Data : 231, 242, 206, 240
W-Data : 4, 65529, 1, 0
VCS Reg. : 0x2900, 0x1407, 0x13EE, 0x8010, 0x0B40
0x010F, 0x0B59, 0x010D, 0x0014, 0x0014, 0x0014
0x0014, 0x0000, 0x0000, 0x1A1A, 0x1A1A, 0x0000
0x0000, 0x204C, 0x0019, 0x0F00, 0x0936, 0xF12D
HPVC Margin : 100, 2971, 428
VCS Mem Data : 0x09B2, 0x085D, 0x0955, 0x0936

ACR Result Page (1)

Result : Signal Noise Error
ACR Kind : Menu ACR
Time in ACR : 259 min
Page Count : 41 pages
PTB Count : 281 pages
Custom Color : 6, 6, 6, 6
Altitude : Plain
Temp : Inner-34, Outer-27, Humidity-106
Y-Data : 210, 210, 205, 200
X-Data : 231, 242, 206, 240
W-Data : 4, 65529, 1, 0
VCS Reg. : 0x2900, 0x1407, 0x13EE, 0x8010, 0x0B40
0x010F, 0x0B59, 0x010D, 0x0014, 0x0014, 0x0014
0x0014, 0x0000, 0x0000, 0x1A1A, 0x1A1A, 0x0000
0x0000, 0x204C, 0x0019, 0x0F00, 0x0936, 0xF12D
HPVC Margin : 100, 2971, 428
VCS Mem Data : 0x09B2, 0x085D, 0x0955, 0x0936

ACR Result Page (2)

Result : Signal Noise Error
ACR Kind : Temp. Condition ACR
Time in ACR : 253 min
Page Count : 34 pages
PTB Count : 274 pages
Custom Color : 5, 5, 5, 5
Altitude : Plain

ACR Result Page (3)

Result : Signal Noise Error
ACR Kind : Temp. Condition ACR
Time in ACR : 125 min
Page Count : 30 pages
PTB Count : 270 pages
Custom Color : 5, 5, 5, 5
Altitude : Plain

SAMSUNG
http://www.samsungprinter.com

■ Reports

Supplies Information Report
- Total Image Count, Total Page Count (color/mono)
  Image Unit / Deve Roller / Fuser / Transfer Roller / Transfer Belt Life
  Toner Image, Toner Dot Count
  Toner Remains Percent, Toner Average Coverage
  Tray Roller Life
  Scan Page Counts
  Beam Size (Draft/Normal)

Toner Supply Page
- Two cases
  - Insert new OPC (Check count = 0)
  - Change bottle (Check the difference of serial number)

Etc.
- Network Info. / NetScan Report
  Error Info. / Usage Page / Component Check / Service Support

■ Network Configuration Report

- General information : Host name, Contact, Mac address ,N/W firmware Version

  TCP/IP Information : IP Assignment, IP Address, Subnet Mask, Default Gateway

  IPP Information / LPD Information / SLP Information / IP Filtering Information / UPnp Information

  Network Connection Status:
  It describe the network line status by checking the physical line.
  O.K - Network connection has no problem and connected
  Disconnected - Network connection is not connected.
  Defective Network line is connected but line has some defect (Short or Open)

■ Messages (Printer & Engine)

Consumables Life

- Toner Low(95%,K(97.5%)) / Replace(100%) / Empty(110%,K(105%))

  Replace transfer belt soon(90%) / Replace transfer belt(100%) - 100k

  Replace fuser soon(90%) / Replace fuser(100%) - 100k

  Replace imaging unit soon(90%) / Replace imaging unit(100%) - 50k (OPC)

  Replace Transfer(T2) roller(100%) - 100k

  Replace Tray1 Pick-Roller(100%) - 50k

Service call error

- Low heat error Cycle power / Over heat error cycle power / LSU motor error cycle power / LSU Hsync error cycle power / Open Heat error cycle power / Main Motor Locked / Deve Home error / Fuser Fan Locked

Paper

- Jam0 / Jam1/ Jam2

  TrayPaper Mismatch, Load Manual Press Start Key

  Manual Feeder Empty / Tray1 Empty

Etc.

- Invalid Black/C/M/Y Toner, Install Black/C/M/Y Toner Door Open, SCF Cover Open, Out-Bin Full, Toner Supply Error

■ Special Operation

Low Speed Mode

- Objective : To improve toner supply, it lowers the speed sometimes
  1. Check the toner level 3 times, consecutively
  2. If its level does not satisfy the normal condition, It lowers the speed followed by coverage

     Color - 25~49%(1/2), 50 ~74%(1/3), 75%~(1/4)

     Mono - 15~24%(1/3), 25~34%(1/4), 35~44%(1/5), 45~54%(1/6), 65~74%(1/8), 75%~(1/9)

Auto Continue

- If auto continue set to ON, Printer automatically paper out after 15 sec in paper mismatch state

Altitude

- Altitude Adj : It can adjust voltage conditions

4.1.4.4 Periodic Defective Image

If an image defects appears at regular intervals on the printed-paper, it is due to a faulty or damaged roller. Refer to the table below and check the condition of the appropriate roller.

No	Roller	Period	Phenomenon
1	OPC Drum	75.4mm	White and Black Spots
2	Charge Roller	26.7mm	White/Black Spot and Periodic Band
3	Supply Roller	40.8(YMC)	Periodic Band (by little difference of density)
		43mm(K)	
4	Developing Roller	30.6mm (YMC)	White Spot, Horizontal black band
		32.5mm(K)	
5	Transfer Roller	45mm	Periodic Band (by little difference of density)
6	Gap-ring	39.0mm	Periodic Band
7	Fusing Belt	125.6mm	White/Black Spot

1 OPC (Organic Photo Conductor)	**4** Deve Roller	**8** Pick_up Roller
	5 Transfer Roller	**9** Rigi Roller
2 Charge Roller	**6** Heat Roller	**10** Exit Roller
3 MP Roller	**7** Pressure Roller	**11** Duplex Roller
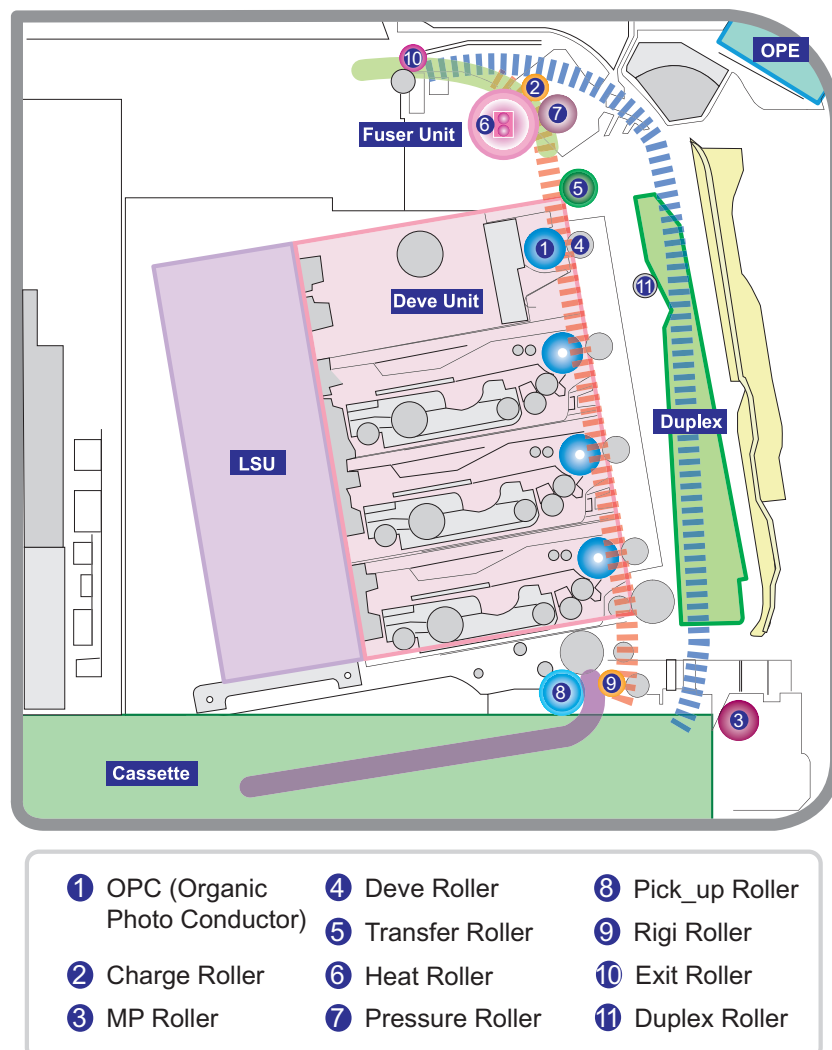
4.1.4.5 F/W Upgrade

• USB and Network port are used to update

• Network applications (SWAS, SWS) can be used to update

• Normal Update
  Send ROM file via USB, network port in Ready state It will automatically update and reset

• Special Mode Update
  1. Power On While Pressing "Stop / Clear" Button
     - It displays download mode message
  2. Send ROM file via USB
  3. It will automatically update and reset

4.1.4.6 Engine Error Check

■ Consumable goods

• Install Cyan (Magenta, Yellow, Black) Toner

• Install Transfer Belt
  ▶ When the CRUM recognition has a problem, it occurs (the contact badness of CRUM terminal or not contact)
  ▶ When the Error occurs, retry minimum 15 times

• Invalid Cyan (Magenta, Yellow, Black) Toner

• Invalid Transfer Belt
  ▶ When the CRUM recognition has a problem, it occurs (In case of wrong CRUM reset or Printer reset)
     - ex) Printer reset of domestic product, CRUM reset of export product

■ Paper Empty / Paper Mismatch

• Paper Empty In MP(Tray1, Tray2)
  ▶ In case of designated tray empty

• Load A4 In MP(Tray1, Tray2)
  ▶ In case of different size between the designated paper from driver and the inserted paper in tray - After finishing print 2 sheets

■ Paper Jam

• Jam 0 In MP(Tray1, Tray2)
  ▶ After Pick up start, in case that feed sensor does not detect the paper in regular time.

• Jam Inside Printer
  ▶ After Feed sensor out , in case that Exit sensor does not detect the paper in regular time.

• Jam In Exit Area
  ▶ After Exit sensor detect , in case of not Out in regular time.

■ Cover Error

· Cover Open : Install Transfer Belt message display by turns
- ▶ In case of open the Left cover or Not equipped with PTB
- ▶ When the state is Printer Power-On , the PTB connector is removed.

· SCF Cover Open
- ▶ In case of designated not Tray selection but Tray2 , in case of open the SCF jam cover

■ Service Call error

· Engine LSU Error
- ▶ In case of occuring lock signal input before LSU motor drives.
- ▶ In case of not occuring lock signal input after LSU motor On (within maximum 12 sec)

· Main Motor Error / Dev. Motor Error
- ▶ In case of occuring lock signal input before BLDC motor drives.
- ▶ In case of not occuring lock signal input after BLDC motor On (within 1.2sec)

· Rear Fan Error / Left Fan Error / SMPS Fan Error
- ▶ In case that input signal from the Fan motor display "High", "Low" continually.

· ADC Not Confirm Error
- ▶ After ADC start , in case that confirm signal does not display for 200ms.

· Engine Fuser Over(Low) Heat Error
- ▶ Low heat : In case of not heating FUSER, In case that the state of Warm-up does not rise the regular temperature in regular time, In case that Ready or printing is below special temperature , In case of not detecting temperature sensor with wrong equipped Thermistor , In case of not connecting the Thermistor, In case that Thermostat is broken
    - ❖ In case that Thermostat is broken - in case of continuous more than 10 sec and ADC below 70
    - ❖ Warm-up : when the warm - up start, in case that fuser temperature is more than ADC 240 for 10 sec in case that fuser temperature slope is minus
    - ❖ Ready : In case of continuous more than 10 sec and below 100
    - ❖ Pre-printing : In case of continuous more than 5 sec and below (Ready target temperature - 30)
    - ❖ Printing :In case of continuous more than 5 sec and below (Printing target temperature - 50)

- ▶ Over heat : In case that the temperuture of FUSER is more than special temperuture, In case that Thermistor becomes short
    - ❖ In case that the fuser temperature is continuous more than 4sec and over 230

4.1.4.7 Tech Mode/ EDC Mode

1) Tech Mode

■ Method to enter

1. After turn on the system power, check the "Ready" message on the LCD.

2. To enter the Tech Mode, Press the key in the order.
   "Menu → Back → Left arrow → Right arrow → OK → Stop"

3. To get out of the Tech Mode, Press the key in the order again.
   "Menu → Back → Left arrow → Right arrow → OK → Stop"
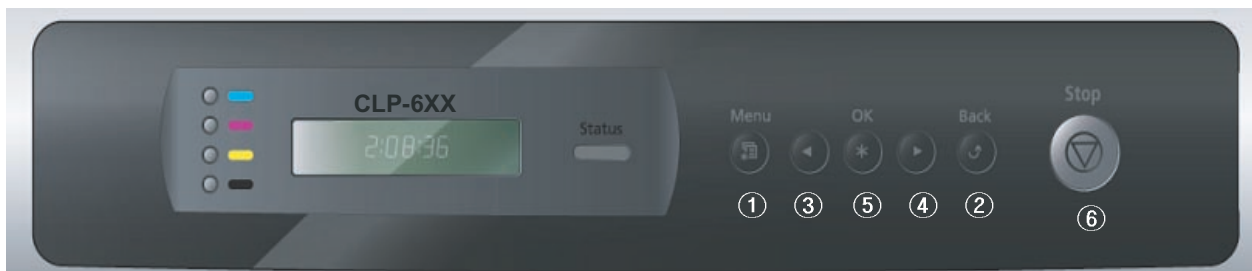
■ Key

Key	Description
Menu	Move to the top menu
Left Arrow	Move test item
OK	Start testing or select Sub-item
Right arrow	Move test item
Back	Move upper menu
Stop	Stop testing

■ Tech Mode Menu

Data Set	Counter Reset	Fuser		You can reset the Fuser Count.
		Pickup Roller	Tray1 Tray2 MP	You can reset the Roller-Count of each tray.
	Margin	Top Margin	[-10-10]:	You can set the Top Margin of all image (-10mm ~ +10mm)
		Left Margin	[-10-10]:	You can set the Left Margin of all image (-10mm ~ +10mm)
Report	Configuration	Printing…		You can print the configuration report.
	Event Log	Printing…		You can print the Event log page. It contains Jam error, the number of Fuser reset.

2) EDC Mode

■ Method to enter

1. After turn on the system power, check the "Ready" message on the LCD.

2. To enter the EDC Mode, Push the button like next time.
    "Menu → Stop → Left arrow → Back → OK → Right arrow"

3. The message "COMPONENT TEST Press Menu Key" display on the LCD.

4. To get out of the EDC Mode, Press the "Stop" key
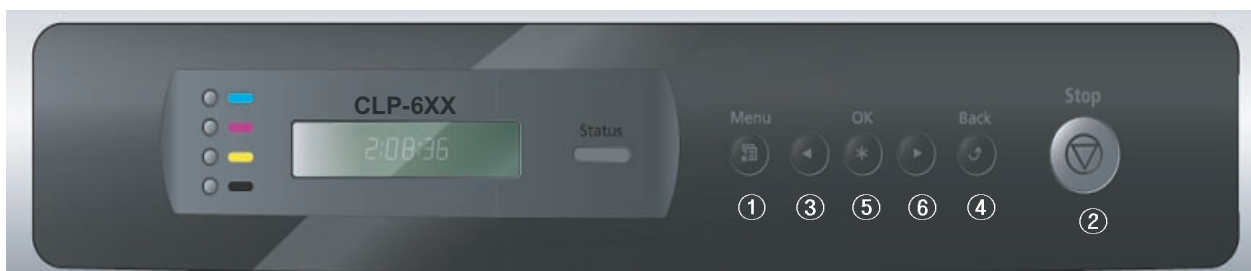
■ EDC Mode Menu

0. Cover Status

Item	Description
Top Cover	When a top cover opened, "Open" message display LCD. If the top cover closed, "Closed" message display LCD.
Tray2 Door	When a tray2 door opened, "Open" message display LCD. If the tray2 door closed, "Closed" message display LCD.

1. Sensor Status

Item	Description
Regi. Sensor	If actuator is checked by sensor, "Without Paper" message will be displayed. if not, "With Paper" will be.
Exit Sensor	If actuator is checked by sensor, "Without Paper" message will be displayed. if not, "With Paper" will be.
MP Empty	If paper exists in the MP tray, "With Paper" will be displayed. If not, "Without Paper" will be.
T1 Paper Empty	If paper exists in the 1st tray, "With Paper" will be displayed. If not, "Without Paper" will be.
T2 Paper Empty	If paper exists in the 2nd tray, "With Paper" will be displayed. If not, "Without Paper" will be.

2. Motor Test

Item	Description
Main Mtr Nor.	If "OK" key is pushed after "ON" displayed, motor will be run. Main motor will auto - stop after 5 seconds and "OFF" message will be displayed.
Dev Mtr Nor.	"OK" key is pushed after "ON" displayed, motor will be run. Dev motor will auto - stop after 5 seconds and "OFF" message will be displayed.
Fuser Mtr Fwd.	If "OK" key is pushed after "ON" displayed, motor will be run forward. Fuser motor will auto - stop after 5 seconds and "OFF" message will be displayed.
Fuser Mtr Bwd.	If "OK" key is pushed after "ON" displayed, motor will be run Backward. Fuser motor will auto - stop after 5 seconds and "OFF" message will be displayed.
T2 Feed Motor	If "OK" key is pushed after "ON" displayed, motor will be run. T2 feed motor will auto - stop after 5 seconds and "OFF" message will be displayed.

3. Fan Test

Item	Description
Fuser Fan	If "OK" key is pushed after "ON" displayed, fan will be run. Fuser fan will auto - stop after 5 seconds and "OFF" message will be displayed.
SMPS Fan	If "OK" key is pushed after "ON" displayed, fan will be run. SMPS fan will auto - stop after 5 seconds and "OFF" message will be displayed.
LSU Fan	If "OK" key is pushed after "ON" displayed, fan will be run. LSU fan will auto - stop after 5 seconds and "OFF" message will be displayed.

4. Clutch/Sol.

Item	Description
T1 P - up Clutch	When "OK" key is pushed after "ON" message displayed, clutch turn on. pick up clutch will be turn off after 5 seconds and "OFF" message will be displayed.
T2 P - up Clutch	When "OK" key is pushed after "ON" message displayed, clutch turn on. pick up clutch will be turn off after 5 seconds and "OFF" message will be displayed. (when SCF is not installed, "not installed" message will be displayed)
MP P - up Clutch	When "OK" key is pushed after "ON" message displayed, clutch turn on. pick up clutch will be turn off after 5 seconds and "OFF" message will be displayed.
K Dev. Clutch	When "OK" key is pushed after "ON" message displayed, clutch turn on. K - clutch will be turn off after 5 seconds and "OFF" message will be displayed.

5. Fuser Ctrl

Item	Description
Fuser1 Control	Fuser 1 on and off. "ON" is selected, fuser will be active and display the fuser temperature [XXX] but "OFF" is selected, fuser will be stop and [0] display
Fuser2 Control	Fuser 2 on and off. "ON" is selected, fuser will be active and display the fuser temperature [XXX] but "OFF" is selected, fuser will be stop and [0] display
Fuser Temp.A	Fuser1 temperature displayed on LCD (example: [251])
Fuser Temp.B	Fuser2 temperature displayed on LCD (example: [251])

6. LSU Control

Item	Description
LD Power Y	When "OK" key is pushed after "ON" message displayed, "OFF" message will be displayed after 5 seconds
LD Power M	When "OK" key is pushed after "ON" message displayed, "OFF" message will be displayed after 5 seconds
LD Power C	When "OK" key is pushed after "ON" message displayed, "OFF" message will be displayed after 5 seconds
LD Power K	When "OK" key is pushed after "ON" message displayed, "OFF" message will be displayed after 5 seconds
LSU Motor	If "OK" key is pushed after "ON" displayed, motor will be run. LSU motor will auto - stop after 5 seconds and "OFF" message will be displayed.

7. DEV Control

Item	Description
Charger	If "OK" key is pushed after "ON" displayed, Charger voltage will be turned on.
Dev DC Y	If "OK" key is pushed after "ON" displayed, Dev DC Y will be turned on.
Dev DC M	If "OK" key is pushed after "ON" displayed, Dev DC M will be turned on.
Dev DC C	If "OK" key is pushed after "ON" displayed, Dev DC C will be turned on.
Dev DC K	If "OK" key is pushed after "ON" displayed, Dev DC K will be turned on.
Dev AC Y	If "OK" key is pushed after "ON" displayed, Dev AC Y will be turned on.
Dev AC M	If "OK" key is pushed after "ON" displayed, Dev AC M will be turned on.
Dev AC C	If "OK" key is pushed after "ON" displayed, Dev AC C will be turned on.
Dev AC K	If "OK" key is pushed after "ON" displayed, Dev AC K will be turned on.
Dev TR Y	If "OK" key is pushed after "ON" displayed, Dev TR Y will be turned on.
Dev TR M	If "OK" key is pushed after "ON" displayed, Dev TR M will be turned on.
Dev TR C	If "OK" key is pushed after "ON" displayed, Dev TR C will be turned on.
Dev TR K	If "OK" key is pushed after "ON" displayed, Dev TR K will be turned on.
P Charger	If "OK" key is pushed after "ON" displayed, Paper Charger will be turned on.

8. Reset Param

Item	Description
Reset ColorReg	"YES" is Selected, reset color registration starts.

(Take care of this menu because all color regi. data is initialized.)

9. Print Test

Item	Description
Pattern Print	"YES" is Selected, pattern printing starts.

4.1.5 Error Message

Message	Explanation	Solution
[yyy] Cassette Out	The tray cassette is not properly closed.	To close the tray, lower the rear edge align it with the slot, and slide it into the printer.
[yyy] Paper Empty	There is no paper in the tray.	Load paper in the tray.
ADC Not Confirm Error	There is a problem in the ADC (Analog to Digital Converter) of your machine.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
ADC Slope Error Cycle Power	The temperature slope for ADC (Analog to Digital Converter) shows the value out of the normal range.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
Adjusting... Registration	The machine is adjusting the color registration.	Please, wait a few minutes.
CTD Calibration Error	The CTD (Color Toner Density) Calibration has invalid value.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
Deve Motor Locked	There is a problem with the deve motor which moves the toner supply device.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
Door Open	The front cover or the top cover is not securely latched.	Close the cover until it locks into place.
Duplex Jam 0 Check Inside	Paper has jammed during duplex printing. It is applicable only for the machine with this feature.	Clear the jam.
Duplex Jam 1 Open/Close Door	Paper has jammed during duplex printing. It is applicable only for the machine with this feature.	Clear the jam.
Duplex Jam 2 Check Inside	Paper has jammed during duplex printing. It is applicable only for the machine with this feature.	Clear the jam.
Fuser Fan Locked	There is a problem with the fan for the fuser unit.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
Humidity Open Cycle Power	The humidity exceeds the normal range.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
Humidity Out Cycle Power	The humidity is fell under the normal range.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
Inner Temp. Open Cycle Power	The inner temperature of the machine is over the normal range.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
Inner Temp. Short Cycle Power	The inner temperature of the machine is under the normal range.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
Install Transfer Belt	The transfer belt is not installed.	Install a Samsung-genuine transfer belt.

Message	Explanation	Solution
Install Toner ▼	The color toner cartridge which the arrow indicates is not installed.	Install the corresponding toner cartridge with a Samsung-genuine cartridge.
Invalid Toner ▼	The color toner cartridge which the arrow indecates is not suitable for your machine.	Install the corresponding toner cartridge with a Samsung-genuine cartridge.
Invalid Transfer Belt	The transfer belt is not for your machine.	Install the Samsung-Invalid genuine transfer belt for your machine.
IP Conflict	The network IP address you have set is being used by someone else.	Check the IP address and reset it if necessary.
Load Manually Press Stop Key	The multi-purpose tray is empty in manual feed mode.	
Load [xxx] In [yyy]	There is no correspondingpaper in the corresponding tray.	Load corresponding paper in the corresponding tray.
Low Heat Error Cycle Power	The fuser unit is low-heated.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
Low Power	The machine is in the previous stage of the power save mode.	When data is received, it switches to on-line automatically.
LSU C-Hsync Err. Cycle Power	There is a problem in the laser beam detecting device of the LSU (Laser Scanning Unit).	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
LSU C-Motor Err. Cycle Power	There is a problem in the LSU (Laser Scanning Unit) motor.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
LSU Hsync Error Cycle Power	There is a problem in the laser beam detecting device of the LSU (Laser Scanning Unit).	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
LSU M-Hsync Err. Cycle Power	There is a problem in the laser beam detecting device of the LSU (Laser Scanning Unit).	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
LSU M-Motor Err. Cycle Power	There is a problem in the LSU (Laser Scanning Unit) motor.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
LSU Motor Error Cycle Power	There is a problem in the LSU (Laser Scanning Unit) motor.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
LSU Y-Hsync Err. Cycle Power	There is a problem in the laser beam detecting device of the LSU (Laser Scanning Unit).	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
LSU Y-Motor Err. Cycle Power	There is a problem in the LSU (Laser Scanning Unit) motor.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
Main Motor Locked	There is a problem with the main motor for the machine.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
MP Tray Paper Jam 0	Paper has jammed in the multi-purpose tray.	Clear the jam.
New Fuser Error	The problem has occurred in the newly installed fuser unit.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.

Message	Explanation	Solution
Non Genuine Toner ▼	The color toner cartridge which the arrow indecates may be recycled-toner.	Install the corresponding toner cartridge with a Samsung-genuine cartridge.
Open Heat Error Cycle Power	The temperature for the fuser unit is over the normal range.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
Outer Temp.Open Cycle Power	The outer temperature of the machine is over the normal range.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
Outer Temp.Short Cycle Power	The outer temperature of the machine is under the normal range.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
Over Heat Error Cycle Power	The fuser unit is overheated.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
Paper Jam 1 Open/Close Door	Paper has jammed inside the machine.	Clear the jam.
Paper Jam 2 Check Inside	Paper has jammed in the paper exit area.	Clear the jam.
Remove Jam Open/Close Door	Paper has jammed in the fuser area.	Clear the jam.
Replace Fuser	The life of the fuser unit is expired.	Replace the fuser unit with a new one. Please, contact the service representatives.
Replace Fuser Soon	The life of the fuser unit will be expired soon.	Replace the fuser unit with a new one. Please, contact the service representatives.
Replace Toner ▼	This message appears between Toner Low and Toner Empty.	Replace the corresponding toner cartridge with a Samsung-genuine cartridge. The arrow indicates which color toner cartridge has to be replaced.
Replace Transfer Belt	The life of the transfer belt is expired.	Replace the fuser unit with a new one. Please, contact the service representatives.
Replace Transfer Belt Soon	The life of the transfer belt will be expired soon.	Replace the transfer belt with a new one. Please, contact the service representatives.
Replace tray Pick-Roller	The life of the tray pick-roller expired.	Replace the fuser unit with a new one. Please, contact the service representatives.
Self Diagnostics LSU	The LSU (Laser Scanning Unit) in your machine is checking some problems detected.	Please, wait a few minutes.
Self Diagnostics Temperature	The engine in your machine is checking some problemd detected.	Please, wait a few minutes.
Sleeping...	The machine is in the power save mode.	When data is received, it switches to on-line automatically.
System Fan Locked	There is a problem with the main fan for the machine.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
Thermistor Open Cycle Power	There is a problem in the temperature sensing device for the fuser unit. This device detects value over the normal value range.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.

Message	Explanation	Solution
Thermistor Short Cycle Power	There is a problem in the temperature sensing device for the fuser unit. This device detects value under the normal value range.	Unplug the power cord and plug it back in. If the problem persists, contact the service representatives.
Toner Empty ▼	The color toner cartridge which the arrow indicates has run out.	Replace the corresponding toner cartridge with a Samsung-genuine cartridge.
Toner Low ▼	The color toner cartridge which the arrow indicates is almost empty.	Take out the corresponding toner cartridge and thoroughly shake it. By doing this, you can temporarily reestablish printing operations.
Tray 2 Paper Jam 0	Paper has jammed in the optional tray.	Clear the jam.

4.2 Troubleshooting

4.2.1 Procedure of Checking the Symptoms

Before attempting to repair the printer first obtain a detailed description of the problem from the customer.

```
                    ┌─────────────┐
                    │  Power On   │
                    └──────┬──────┘
                           │
                           ▼
                      ◇ OP Panel ◇      No      ┌──────────────────────┐
                      ◇   ON?    ◇ ──────────▶  │ - No Power           │
                           │                    │ - Power Module error │
                          Yes                   │ - Main PBA error     │
                           │                    │ - LCD Panel error    │
                           ▼                    └──────────────────────┘
                      ◇ Ready or ◇     No      ◇  Indicate    ◇   Yes    ┌──────────────────┐
                      ◇ Power save◇ ────────▶  ◇ Error Massage◇ ──────▶  │ Refer to         │
                           │                        │                    │ Error Massage    │
                          Yes                       No                   │ <Chapter 4.1.5>  │
                           │                        │                    └──────────────────┘
                           ▼                        │
                    ┌─────────────┐◀───────────────┘
                    │ Test Print  │
                    └──────┬──────┘
                           │
                           ▼
                      ◇ printing  ◇    No       ┌─────────────────────┐
                      ◇ Quality is◇ ─────────▶  │ Refer to "Solution  │
                      ◇  Nomal?   ◇             │ of Image Problem"   │
                           │                    └─────────────────────┘
                          Yes
                           │
                           ▼
                    ┌─────────────┐
                    │   END      │
                    └─────────────┘
```
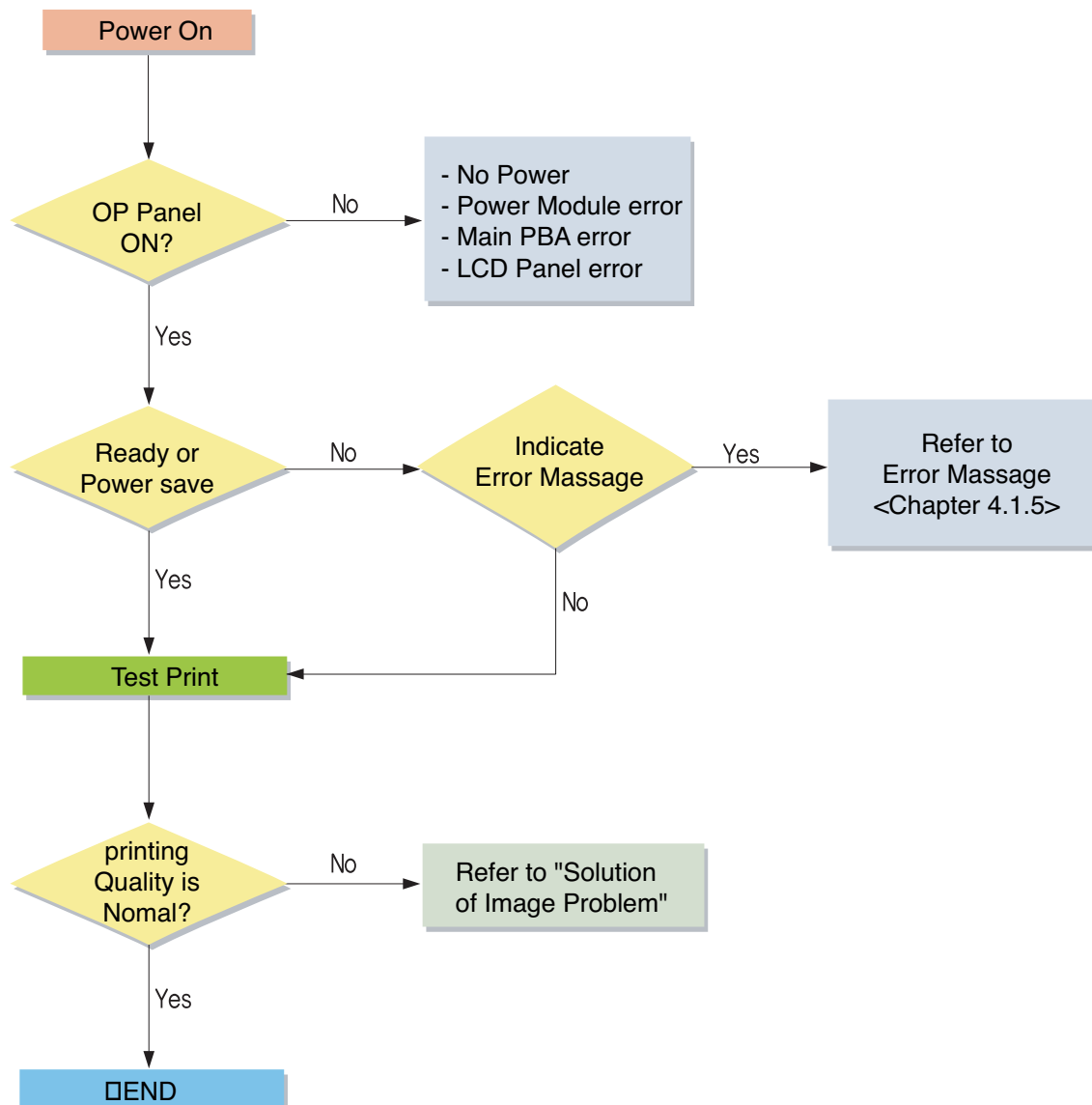
4.2.2 The cause and solution of image quality

1) Vertical Black Line and Band

Description: 1. Straight thin black vertical lines are shown in the print-out.
2. Dark black vertical bands are shown in the print-out.

Check and Cause	Solution
1.Damaged Developer roller, deformed Doctor-blade or cleaning blade in the toner cartridge.	Replace the toner Cartridge and test again.
2. Scratched surface of the charge roller in the toner cartridge.	Replace the toner Cartridge and test again.
3. Damaged paper transfer Belt(PTB) or Contaminated on PTB.	Replace the PTB unit and test again.
4. Contaminated on paper charge roller.	Replace the PTB unit or Cleaning the paper charge roller.

End

2) Vertical White Line

Description: White vertical voids in the image.

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause

Solution

1.Contamination of the window or internal lenses of LSU mirror.

Clean the LSU window with recommended cleaner(IPA). Clean the window with a clean cotton swab. If dir is inside the LSU-replace LSU.

2.Foreign object inside the toner cartridge.

Replace the toner Cartridge.

3. Scratch of OPC Drum.

Replace the toner Cartridge.

End

3) Horizontal Black Bands

Description: Dark or blurry horizontal stripes occur in the printing periodically
(These may occurs at regular intervals down the page.)

~~Digital Printer~~
Digital Printer
Digital Printer
~~Digital Printer~~
~~Digital Printer~~

Check and Cause

Solution

1. Bad contacts on the toner cartridge high voltage terminals.

Clean all HV terminals in the Cartridge and on the set frame. Ensure all toner or paper dust, particles are removed.

2. The rollers in the toner cartridge may be contaminated.

1) Charge Roller: 26.7 mm
2) Supply Roller: 40.8 mm(YMC) / 43 mm(K)
3) Developing Roller: 30.6 mm(YMC) / 32.5 mm (K)
4) Transfer Roller: 45 mm
5) Paper Charge Roller : 26.7 mm
6) OPC Drum : 75.4 mm
7) Fusing Belt : 125.6 mm

Replace the toner Cartridge.

3. Contamination of the Gap-Ring -regular intervals 39.0 mm

Replace the toner Cartridge.

End

4) Black/White Spot

Description: 1. Dark or blurry spots occur periodically in the printing
2. White spots occur periodically in the printing

Check and Cause

1.OPC drum & rollers
in the Developer or charger may be damaged
and contaminated with foreign matter
or paper particles.

Solution

Replace the Imaging Unit and
test again

End
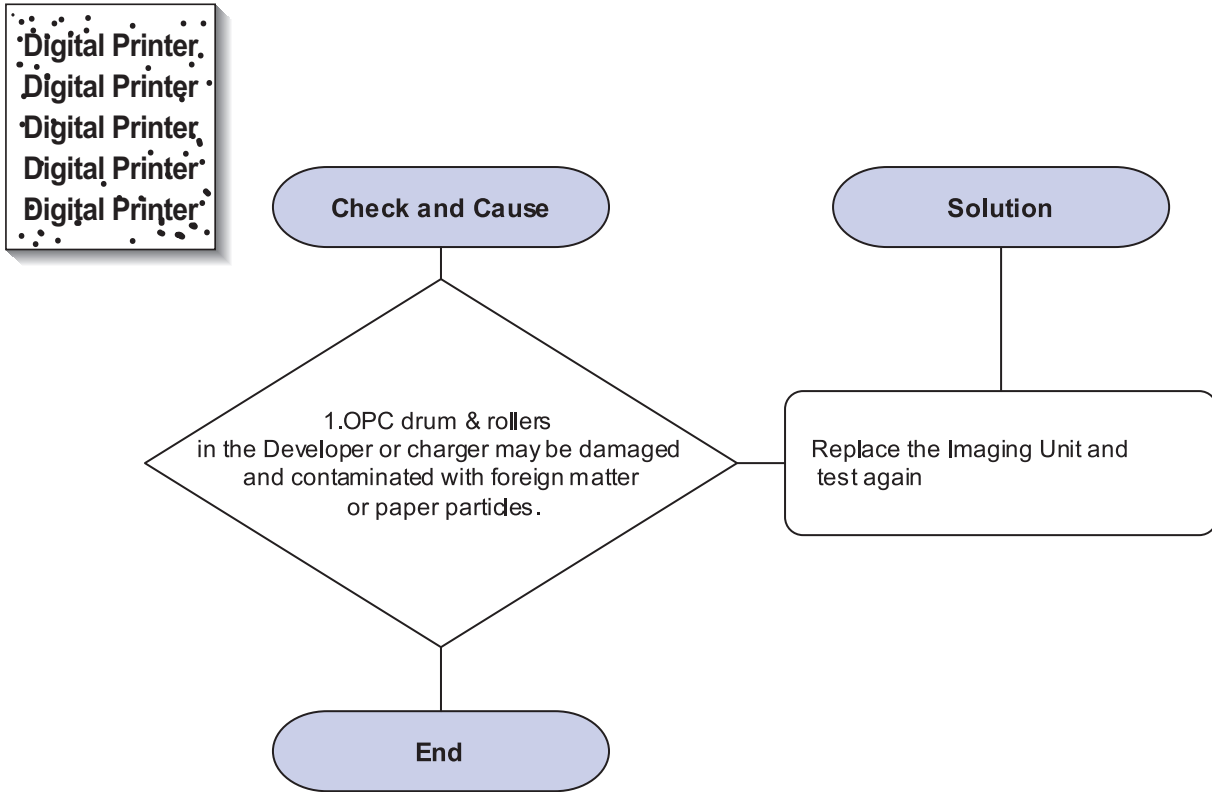
5) Light Image

Description: The printed image is light, with no ghost.

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause

Solution

Develop roller
is contaminated or the toner is
almost empty.

Replace the Imaging Unit and try to
print out again.

2. Bad contact caused
by dirty terminals on
the Imaging Unit or set.

Clean the cartridge and set contacts.
Gently clean dirt from inside of
the set.

3. Abnormal output from the HVPS.

Replace the HVPS if the problem
are not solved by the above four
instructions.

End
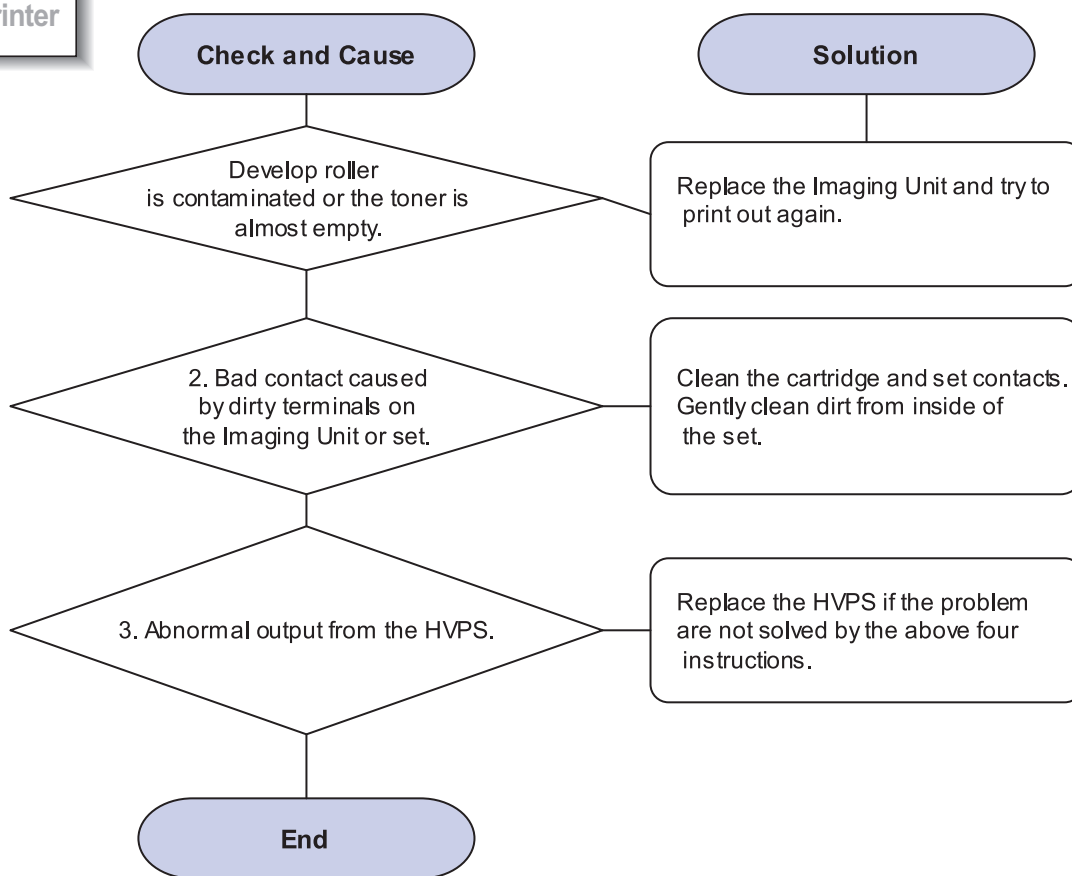
6) Dark image or Black

Description: The printed image is dark.

Check and Cause

Solution

1.No charge voltage in the engine board.

Check the state if the connector which connects the engine board and HVPS.

2.Charge voltage fault due to bad contact between toner cartridge and set contacts.

Clean the high voltage charge terminals.
Note if 1 and 2 do not solve the problem persists replace the HVPS.

End

7) Uneven Density

Description: Print Density is uneven between left and right.

Digital *Printer*
Digital *Printer*
Digital *Printer*
Digital *Printer*
Digital *Printer*

Check and Cause

Solution

1.The pressure force in the left and right springs of the transfer roller is not even, the springs are damaged, the transfer roller is improperly installed, or the transfer roller bushing or holders are damaged.

Replace the left and right bush and spring assemblies.

2.Toner lis low.

Replace the toner-KIT and try to print out.

3.The toner level is not even in the toner cartridge roller due to the damaged blade.

Replace the Imaging Unit.

End

8) Strain in the Face of the Page

Description:The background on the face of the printed page strained

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause

Solution

Toner leakage due
to improperly sealed Imaging Unit.

Replace the Imaging Unit.

2. Poor Toner cartridge OPC cleaning.

Replace the Imaging Unit.

End

9) Strains on Back of Page

Description: The back of the page is strained at 43.9 or 75.5 mm intervals.

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause	Solution
1. PTB Cleaning Defect.	Replace PTB Unit.
2. PTB belt damage.	Replace PTB Unit.

End

10) Uneven Density

Description: Print Density is uneven between left and right.

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause

Solution

1.The pressure force in the left and right springs of the transfer roller is not even, the springs are damaged, the transfer roller is improperly installed, or the transfer roller bushing or holders are damaged.

Replace the left and right bush and spring assemblies.

2.Toner lis low.

Replace the toner-KIT and try to print out.

3.The toner level is not even in the toner cartridge roller due to the damaged blade.

Replace the Imaging Unit.

End

11) Blank Page Print out(1)

Description: Blank page is printed.

Check and Cause

Solution

1.Bad ground contacts in OPC (in the toner cartridge)

1.Check if the Ground-OPC or the OPC Groung.
2.Remove contamination of the terminals in the Imaging Unit and the unit.

End
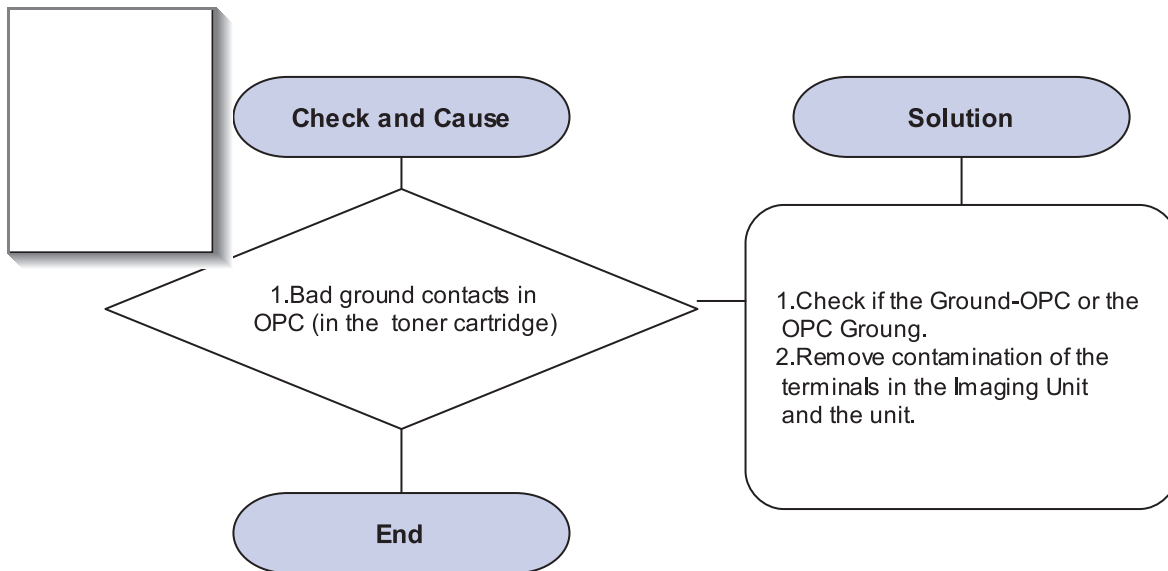
12) Ghost

Description: Ghost occur at 75.4mm intervals of the OPC drum or 33mm intervals of the developing roller in the whole Printing

Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

75.5 mm

Check and Cause | **Solution**

1.Bad contacts caused by contamination from toner particles between high voltage terminal in the main body and the one in the HVPS board → Clean all HV contacts. If problem persist replace the HVPS.

2. The life of Imaging Unit is expired. → Replace the Imaging Unit

3. 2nd Transfer roller life (100,000 sheets) has expired. → Check the 2nd transfer roller lifetime and replace it.

4.Damaged cleaning blade in the Imaging Unit → Replace the Imaging Unit.

End

4.2.3 The cause and solution of the paper feeding

1) Wrong Print Position

Description: Printing begins at wrong position on the paper.

```
        ┌─────────────────┐              ┌─────────────────┐
        │ Check and Cause │              │    Solution     │
        └─────────────────┘              └─────────────────┘
                 │                                 │
            ◇────────────◇              ┌─────────────────────┐
          Wrong sensor timing           │ Replace the defective actuator. │
        caused by defective feed sensor  └─────────────────────┘
              actuator.
                 │
        ┌─────────────────┐
        │       End       │
        └─────────────────┘
```
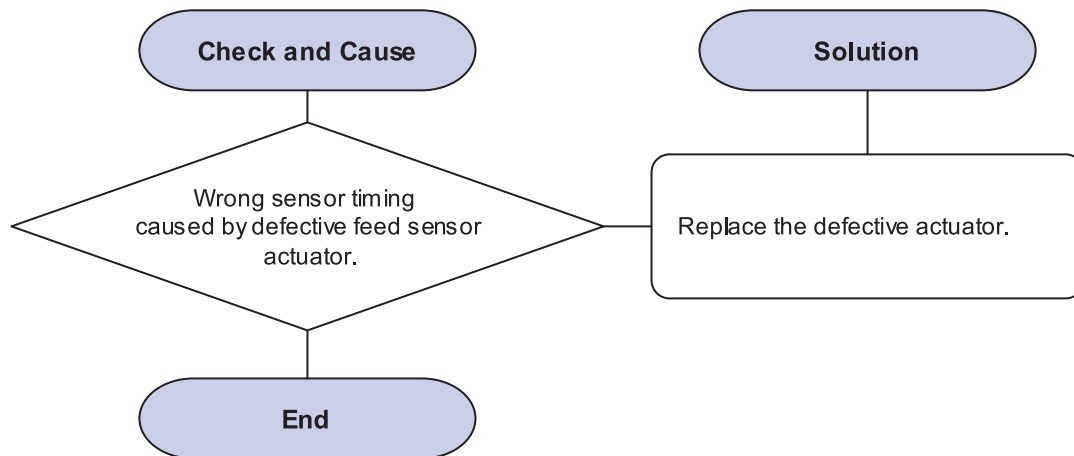
2) JAM 0

Description: 1. Paper does not exit from the cassette.
2. Jam-0 occurs when the paper feeds into the printer

Check and Cause

Solution

1.Check the Solenoid by using Tech Mode.

Replace the solenoid.

2.Check the cassette knock-up plate and springs.

Repair/replace as required.

3.Check the paper separator pad.

Clean with soft cloth dampened with IPA(Isopropyl Alcohol) or water. Replace if required.

4.Check the pick-up roller for contamination and correct assembly.

Clean with soft cloth dampened with IPA(Isopropyl Alcohol) or water. Replace if required.

5.If continuous clusters occur, check all rollers between pick-up and registration sensor.

Ensure all rollers are clean and free to operate correctly.

End

3) JAM 1

Description: 1. Paper is jammed in front of or inside the fuser.
2. Paper is stuck in the exit roller and in the fuser just after passing through the Actuator-Feed

Check and Cause

Solution

2.If the recording paper is stuck in the exit roller and in the fuser just after passing through the Actuator -Feed, Feed Actuator may be defective.

Reassemble the Actuator-Feed and spring-Actuator if the movement is bad. Replace if necessary.

End
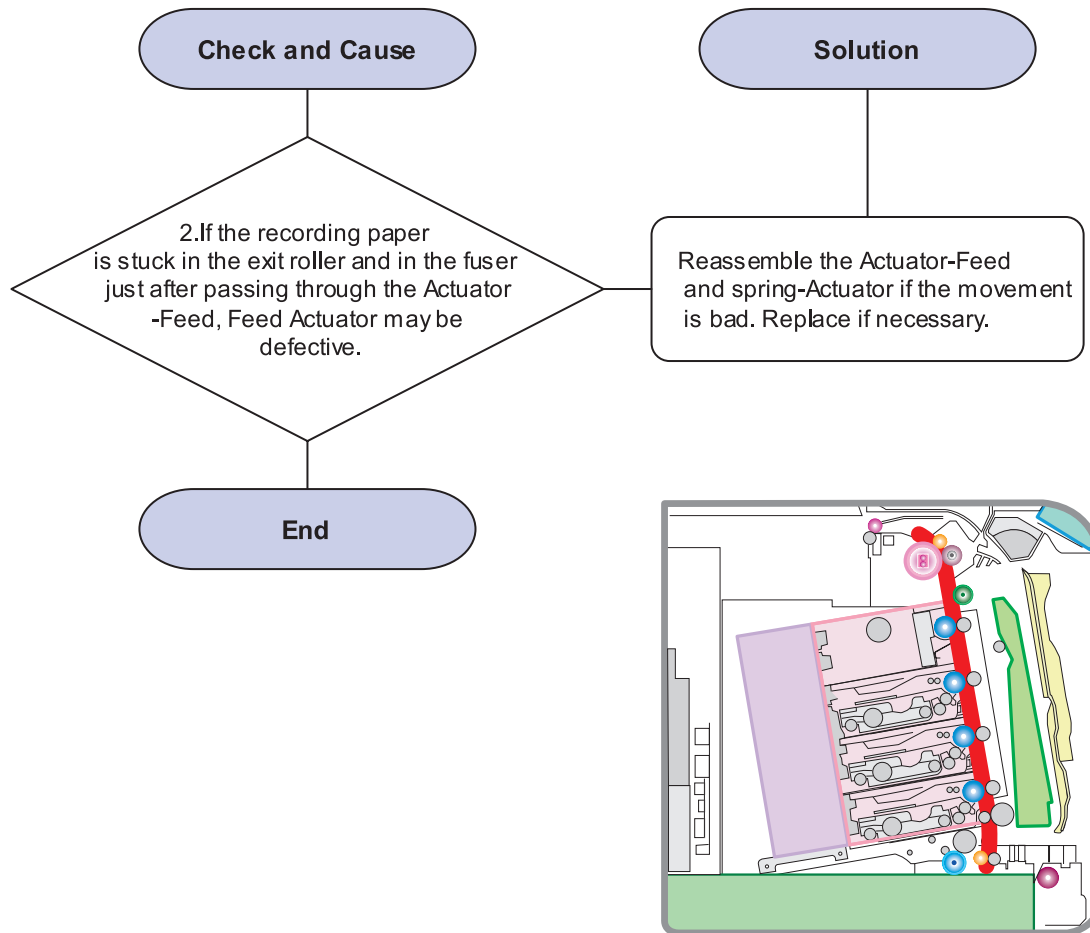
4) JAM 2

Description: 1. Recording paper is jammed in front of or inside the fuser.
2. Recording paper is stuck in the discharge roller and in the fuser just after passing through the Actuator-Feed.

Check and Cause

Solution

If the paper is rolled in the Fuser Roller.
This occurs when a Guide claw is broken away, damaged or deformed.
It occurs when the Heat Roller or Pressure Roller is seriously contaminated with toner.

If the paper is stuck in the fuser: disassemble the fuser and remove the jammed paper and clean the surface of the pressure roller with dry gauze. Check all ribs.

End
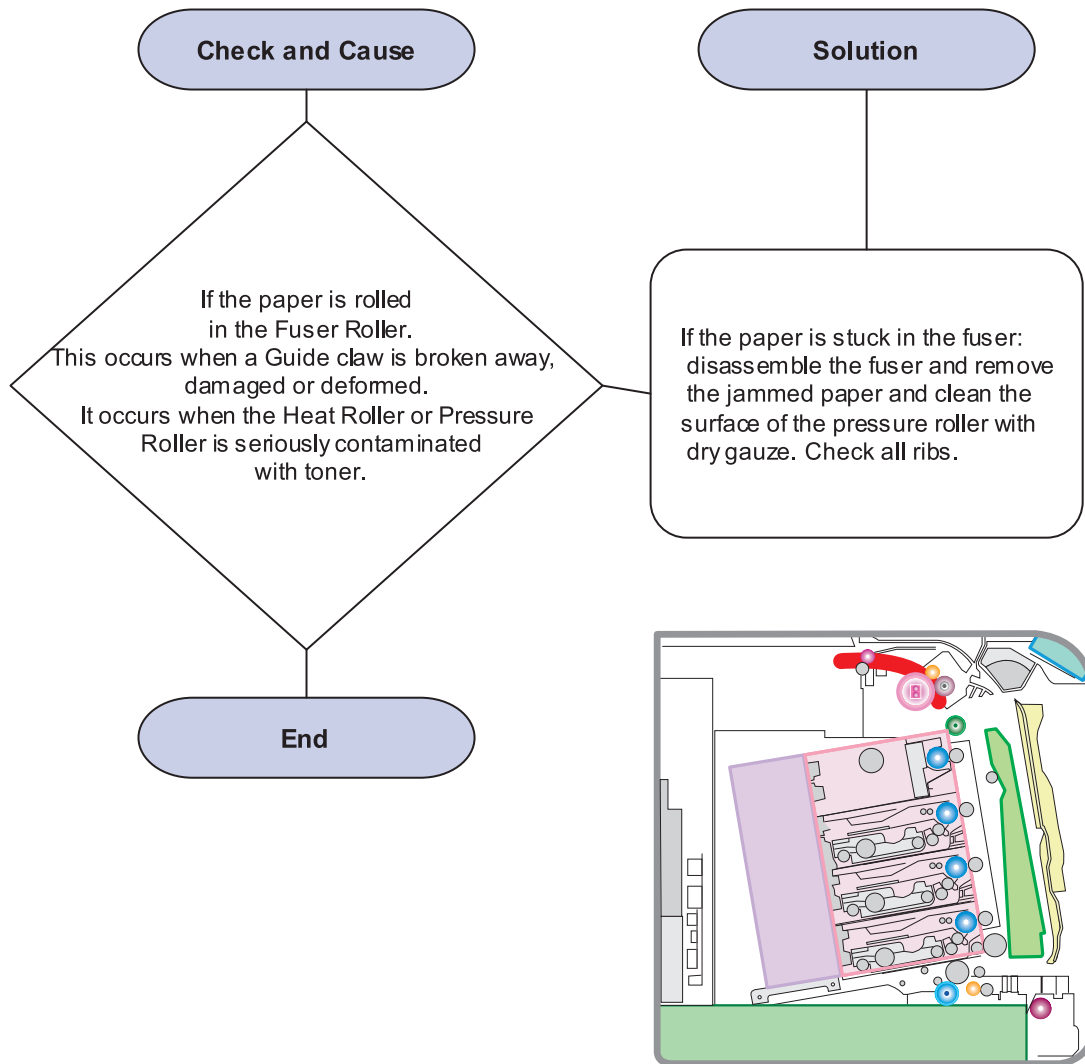
5) Paper rolled in the fuser

Description: Paper rolled around fuser rollers or 'Concertina' jam

Check and Cause

Solution

1.Contamination of the pressure roller or heat roller

After disassembling the fuser, clean contamination from between the heat roller and the thermistor and also clean contamination from the pressure roller.
Clean the surface of the rollers with IPA or water.

End
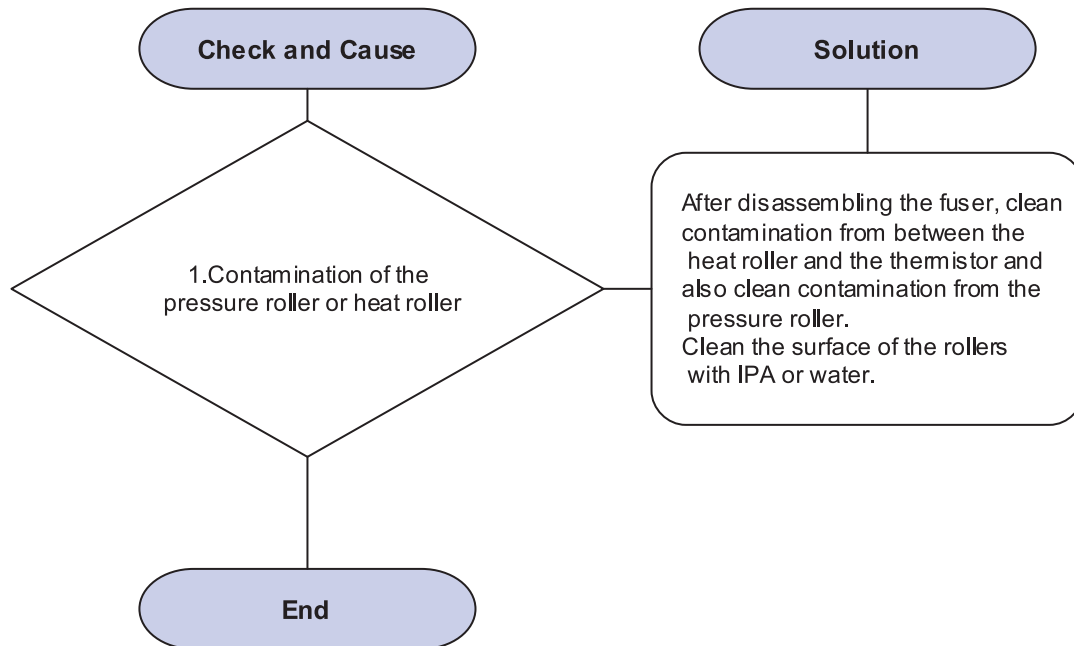
4.2.4 OPE Problems

1) Nothing Displayed on LCD

Description: LCD does not display anything

Check and Cause

Solution

1.Check if OPE connection cable was connected well with main board.

If not, OPE connection cable connect well with main board After connected well, Try to reboot the printer

End

Check if the LCD wasn't displayed

YES

Check if the OPE's connection cable was connected well with Main-Boardl

YES

NO

After connected well, Try to reboot the printer

NG

Replace OPE Unit Assy

OK

End

Try to reboot the printer

NG

Replace Main-Board

OK

End

Try to reboot the printer

End

4.2.5 Other Problems

1)Fusing Problems

· The fuser consists of the Heat Lamp, Heat Roller, Pressure Roller, Thermistor, and Thermostat.

Error	Phenomenon
Low Heat Error	In warm-up - When the Fuser is under 50 ℃ for 45 seconds and more In ready - When the Fuser is under 130 ℃ for 10 seconds and more In Printing state - When the Fuser is under 40 ℃ of target temperature for 10 seconds and more
Over Heat Error	When the set is over 210 ℃ for 4 seconds and more

Fuser error

Description : A message below is displayed in a LCD panel.

Open Heat Error
Cycle Power

Low Heat Error
Cycle Power

Over Heat Error
Cycle Power

check AC wire and other connector.

remove the Fuser Ass'y and
measure the resistance value.
Is the Resistance value correct?

YES

replace the SMPS and Main board in
sequence

NO

1) open : replace a Fuser Ass'y if the same error occurs again
after replacing the thermostat.
2) different resistance value : replace a Fuser Ass'y if the same
error occurs again after examining the assembly status.

2) No Power(1)

Description : When system power is turned on, all LED on the operator panel do not come on.

```
┌─────────────────────┐
│     No working      │
└─────────────────────┘
           │
           ▼
     ╱─────────────╲                          ┌──────────────────────────────────┐
    ╱  Is the Green  ╲          NO             │ 1. check the each connector certainly. │
   ╱  LED on the Main ╲───────────────────────▶│ 2. Replace the power supply cord or SMPS. │
   ╲   board is ON?   ╱                         │    (cause : open the fuse in SMPS)  │
    ╲               ╱                           └──────────────────────────────────┘
     ╲─────────────╱
           │
          YES
           │
           ▼
┌─────────────────────┐
│ try again after replacing the │
│      Main board      │
└─────────────────────┘
```
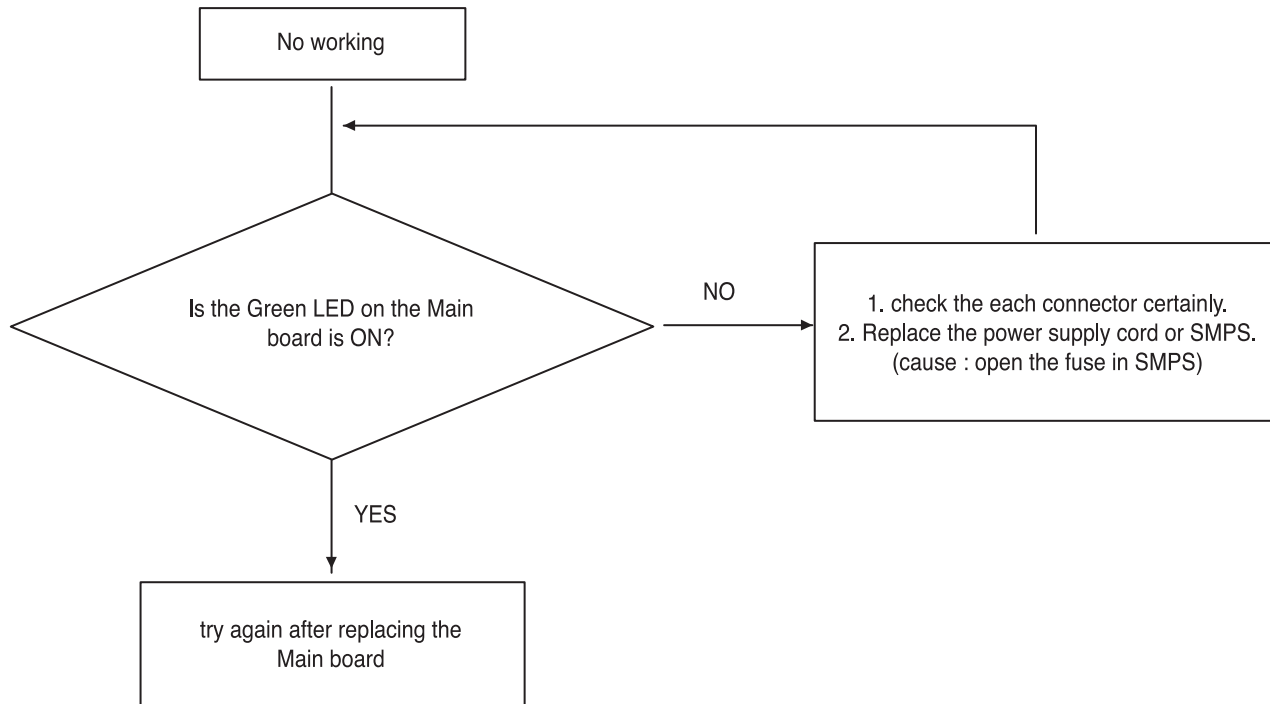
2) No Power(2)

Description : When system power is turned on, you can hear short beep sound continuously.

```
┌─────────────────────────┐
│ No working and periodical│
│      beep sound         │
└─────────────────────────┘
            │
┌─────────────────────────┐
│check the each harness and connector,│
│ especially SMPS and Engine harness │
└─────────────────────────┘
            │
       ◇ Power off and Power on, is it still ──NO──▶ ◇ Is the Red LED on the Main board ──NO──▶ ┌──────────────┐
         beep sound?                                   is ON?                                  │ go to the no │
                                                                                               │power(1) section│
            │                                                                                  └──────────────┘
          YES
            │
┌─────────────────────────┐
│ remove the all connectors in Main board │
│     without Engine connector.      │
└─────────────────────────┘
            │
       ◇ Power off and Power on, is it still ──────▶ ┌─────────────────────────────────┐
         beep sound?                                  │  You have to find the short board.  │
                                                      │Power off and connect the harness in order below.│
            │                                         │                                 │
            │                                         │      1. LSU connector           │
            │                                         │      2. BLDC motor connector...  │
            │                                         │                                 │
            │                                         │if you find the short board or harness, replace that part│
            │                                         │          with new one.           │
            │                                         └─────────────────────────────────┘
┌─────────────────────────┐
│ try again after replacing the │
│      Main board          │
└─────────────────────────┘
```

3) LSU Error

Description : A message below is displayed in a LCD panel.

LSU Motor Error
Cycle Power

LSU Hsync Error
Cycle Power

Self Diagnostics
LSU

check the LSU interrupt
switch and harness

LSU_5V pin(number 2 of LSU
connector) is 5V?

NO → replace the LSU interrupt
switch and harness

YES

replace the Main board if the same error
occurs again after relacing a LSU

4) Toner Problems

* Cautions

<u>OPC unit</u>
- No sunlight & white light exposure
- No touch (no finger print)
- No OPC cleaning with Acetone or Ethanol

<u>PTB Unit</u>
- No touch
- No finger print
- No sharp object
- No sunlight
- Use only IPA or Ethanol when cleaning

5. Exploded Views and Parts List

Contents

Samsung Color Laser Printer

The keynote of Product

High SMB/Easy of Use Tandem CLBP

- Emulation : CLP-610ND(SPL-C), CLP-660, 660N(PostScript 3, PCL6)

- Speed : CLP-610ND(20/20 ppm), CLP-660, 660N(24/24 ppm)

- Resolution : CLP-610ND(1,200 x 600 dpi), CLP-660N, 660ND(1,200 x 600 dpi)

- CPU : CLP-610ND(300 MHz), CLP-660N, 660ND(533 MHz)

- Interface : N/W

- Memory : CLP-610ND / 64 MB, CLP-660N, 660ND/128 MB (Max. 640 MB)

- Duplex (Option)

- 250 CST, 1 Manual, 100 MP

- Toner Cartridge: 2.5K/2K (Std.), 5.5K/5K (High)

- Printer Life: Color 200K / Mono 200K pages

5.1 Main
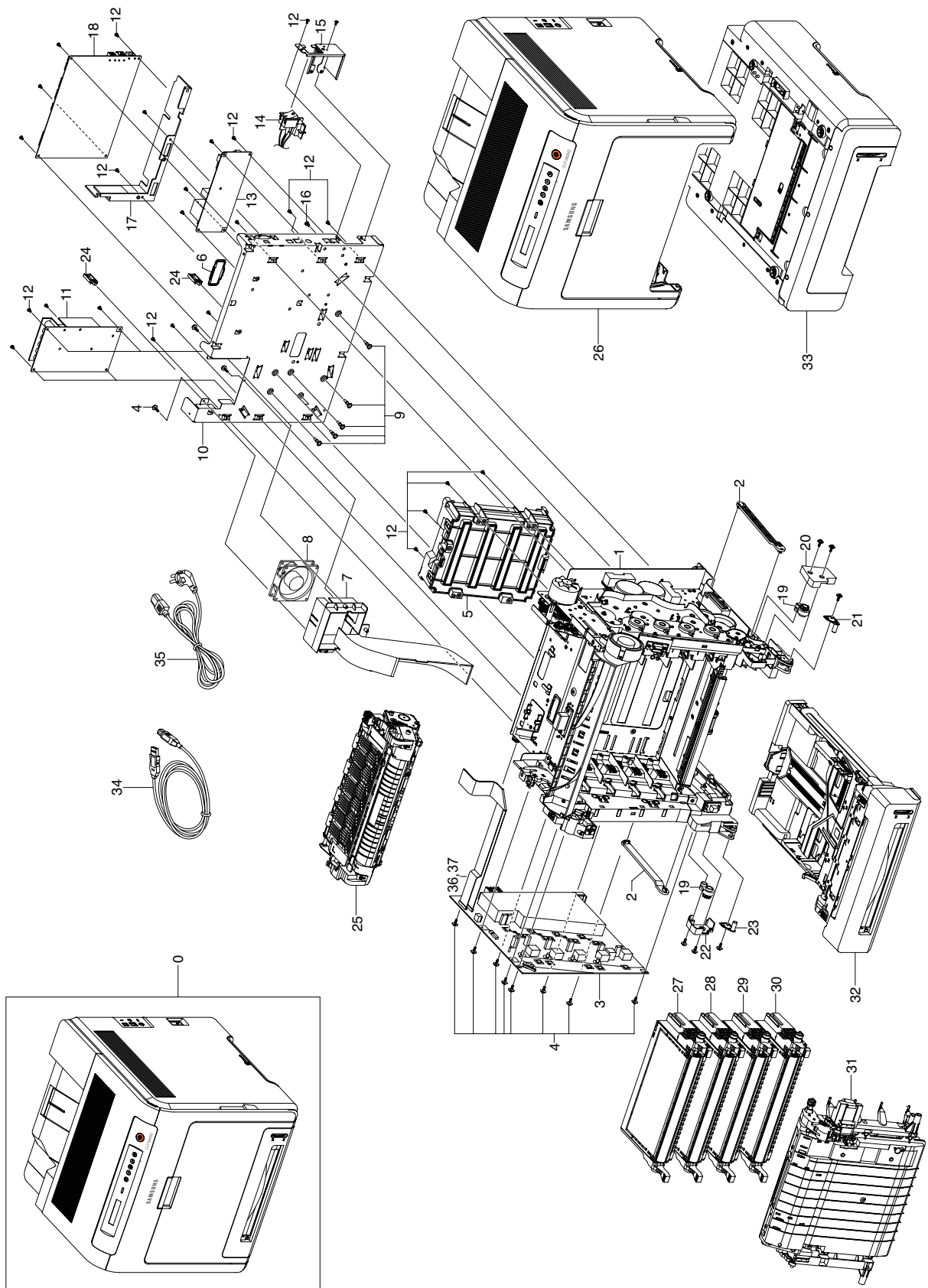
Main Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

Drawer#	SEC_CODE	DESCRIPTION	QT'Y	Service	Remark
5.1-0	CLP-610ND	A4 CLBP,GDI,N/W,DUPLEX			
5.1-0	CLP-660ND	A4 CLBP,PCL,N/W,DUPLEX			
5.1-0	CLP-660N	A4 CLBP,PCL,N/W			
5.1-1	JC96-04490A	ELA UNIT-MAIN_FRAME	1	SA	CLP-660
5.1-1	JC96-04490B	ELA UNIT-MAIN_FRAME	1	SA	CLP-610
5.1-2	JC66-01422A	LINK-HINGE	2	SA	
5.1-3	JC44-00136A	HVPS	1	SA	
5.1-5	JC96-04500A	ELA UNIT-LSU	1	SA	
5.1-6	JC61-01012A	GUIDE-_M_BUSH HARNESS S	1	SA	
5.1-7	JC96-04487A	ELA UNIT-DUCT_FUSER	1	SA	
5.1-8	JC31-00072A	FAN-DC	1	SA	
5.1-10	JC96-04864A	ELA UNIT-BRACKET_MAIN	1	SA	
5.1-11	JC44-00091A	SMPS-PSP_TYPE4_V1	1	SA	110V
5.1-11	JC44-00092A	SMPS-PSP_TYPE4_V2C	1	SA	220V
5.1-13	JC44-00143A	FDB-MULTI_TRIAC V2C,CLP-660	1	SA	220V
5.1-13	JC44-00142A	FDB-MULTI_TRIAC V1,CLP-660	1	SA	110V
5.1-13	JC44-00153A	FDB-SINGLE TRIAC V2C,CLP-610	1	SA	220V
5.1-13	JC44-00152A	FDB-SINGLE TRIAC V1,CLP-610	1	SA	110V
5.1-14	JC39-00662A	HARNESS-AC_INLET	1	SNA	CLP-660
5.1-15	JC61-01867A	BRACKET-DUMMY_POWER	1	SA	
5.1-17	JC61-01866A	BRACKET-MAIN	1	SA	
5.1-18	JC92-01870A	PBA-MAIN,CLP-660	1	SA	110V
5.1-18	JC92-01870B	PBA-MAIN,CLP-660	1	SA	220V
-	JC96-04583A	ELA HOU-MAIN_SODIMM,CLP-660		SNA	110V
	JC96-04583B	ELA HOU-MAIN_SODIMM,CLP-660		SNA	220V
-	JC92-01889A	PBA SUB-RAM DIMM,128MB	1	SNA	CLP-660
5.1-18	JC92-01949A	PBA-MAIN,CLP-610	1	SA	
5.1-18					
-	JC96-04841A	ELA HOU-MAIN_SODIMM,CLP-610	1	SA	
-	JC92-01923A	PBA-RAM DIMM,DDR2	1	SNA	CLP-610
5.1-19	JC66-01425A	DAMPER-HINGE	2	SA	
5.1-20	JC61-01911A	FRAME-DAMPER_R	1	SA	
5.1-21	JC61-01897A	BRACKET-HINGE_R	1	SA	
5.1-22	JC61-01912A	FRAME-DAMPER_L	1	SA	
5.1-23	JC61-01896A	BRACKET-HINGE_L	1	SA	
5.1-24	6502-001093	CABLE CLAMP	2	SA	
5.1-25	JC96-04495A	ELA UNIT-FUSER LV,CLP-660	1	SA	110V
5.1-25	JC96-04496A	ELA UNIT-FUSER HV,CLP-660	1	SA	220V
5.1-25	JC96-04544A	ELA UNIT-FUSER LV,CLP-610	1	SA	110V
5.1-25	JC96-04545A	ELA UNIT-FUSER HV,CLP-610	1	SA	220V

Main Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

Drawer#	SEC_CODE	DESCRIPTION	QT'Y	Service	Remark
5.1-26	JC97-02941B	MEA UNIT-COVER	1	SA	CLP-660N
5.1-26	JC97-02941C	MEA UNIT-COVER	1	SA	CLP-660ND
5.1-26	JC97-02941A	MEA UNIT-COVER	1	SA	CLP-610ND
5.1-27	JC96-04391A	ELA UNIT-DEV BK_SET	1	SNA	
5.1-28	JC96-04392A	ELA UNIT-DEV C_SET	1	SNA	
5.1-29	JC96-04393A	ELA UNIT-DEV M_SET	1	SNA	
5.1-30	JC96-04394A	ELA UNIT-DEV Y_SET	1	SNA	
5.1-31	JC96-04406A	ELA UNIT-PTB SET_DUPLEX	1	SNA	
5.1-32	JC96-04498A	ELA HOU-UNIT_CASSETTE	1	SNA	
5.1-33	JC96-04502A	ELA HOU-UNIT_SCF	1	SNA	
5.1-34	-	USB CABLE	1	SA	
5.1-35	-	POWER CORD	1	SA	
5.1-36	JC39-00651A	FLAT CABLE, 410mm	1	SA	
5.1-37	JC39-00650A	FLAT CABLE, 390mm	1	SA	

5.2 Cover Unit
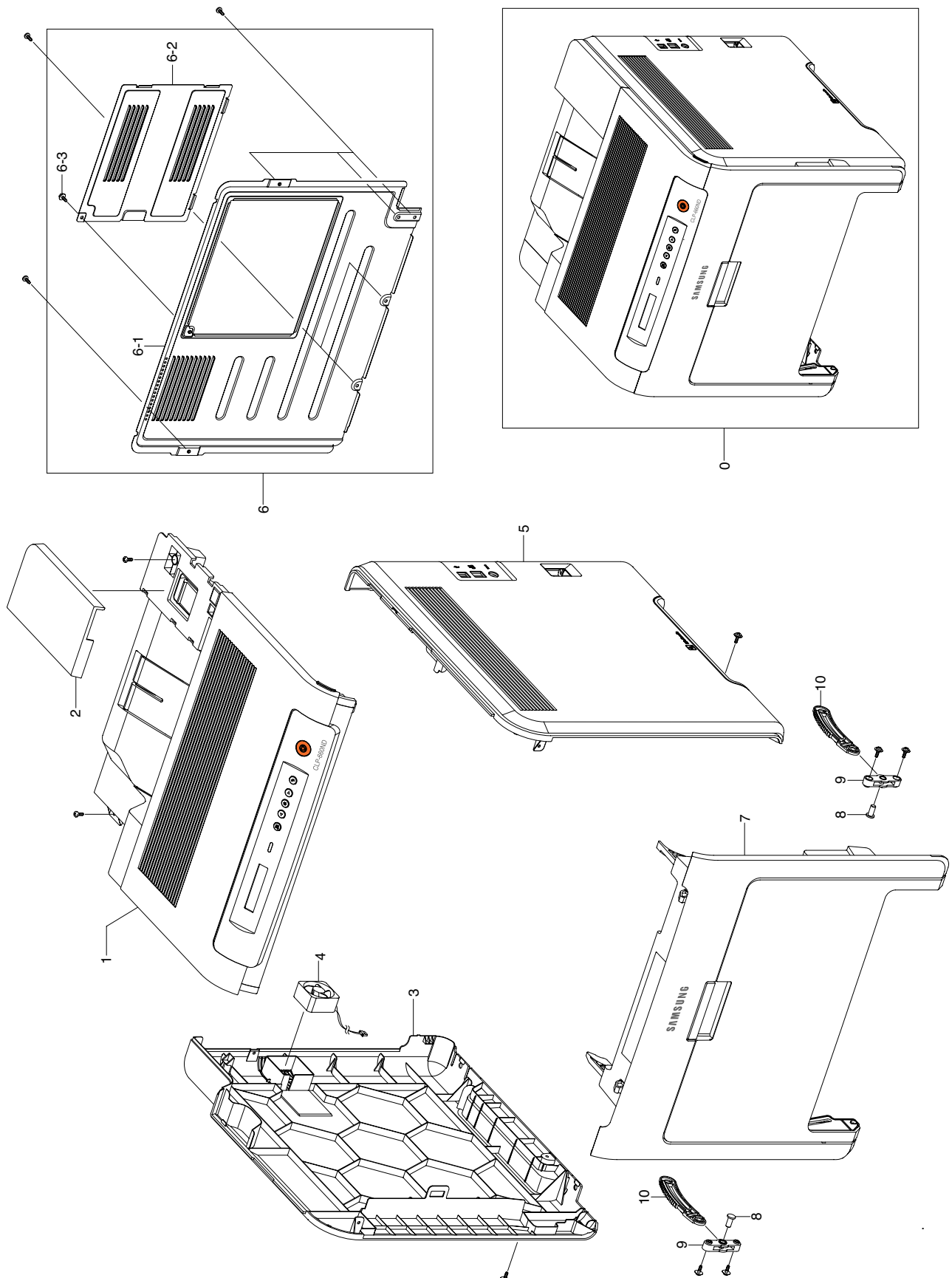
Cover Unit Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

Drawer#	SEC_Code	Description	QT'y	Service	Remark
5.2-0	JC97-02941A	MEA UNIT-COVER	1	SA	CLP-660
5.2-0	JC97-02941B	MEA UNIT-COVER	1	SA	CLP-660N
5.2-0	JC97-02941C	MEA UNIT-COVER	1	SA	CLP-660ND
5.2-0	-	MEA UNIT-COVER	1	SA	CLP-610
5.2-0	-	MEA UNIT-COVER	1	SA	CLP-610N
5.2-0	-	MEA UNIT-COVER	1	SA	CLP-610ND
5.2-1	JC96-04415A	ELA-COVER TOP	1	SA	CLP-660
5.2-1	JC96-04415B	ELA-COVER TOP	1	SA	CLP-660N
5.2-1	JC96-04415C	ELA-COVER TOP	1	SA	CLP-660ND
5.2-1	-	ELA-COVER TOP	1	SA	CLP-610
5.2-1	-	ELA-COVER TOP	1	SA	CLP-610N
5.2-1	-	ELA-COVER TOP	1	SA	CLP-610ND
5.2-2	JC63-01279A	COVER-TOP SUB	1	SA	
5.2-3	JC63-01275A	COVER-LEFT	1	SA	
5.2-4	JC31-00050A	FAN	1	SA	
5.2-5	JC63-01276A	COVER-RIGHT	1	SA	
5.2-6	JC97-03052A	MEA-COVER REAR	1	SA	
5.2-6-1	JC63-01294A	COVER-REAR	1	SA	
5.2-6-2	JC63-01314A	COVER-REAR HDD	1	SA	
5.2-6-3	6003-000269	SCREW-TAPTITE	1	SA	
5.2-7	JC97-02846A	MEA-COVER FRONT	1	SA	
5.2-8	JC66-00835A	SHAFT-HINGE LINK	2	SA	
5.2-9	JC61-01846A	HOLDER-LINK FRONT	2	SA	
5.2-10	JC66-01358A	LINK-SUPPORT	1	SA	

5.3 Top Cover
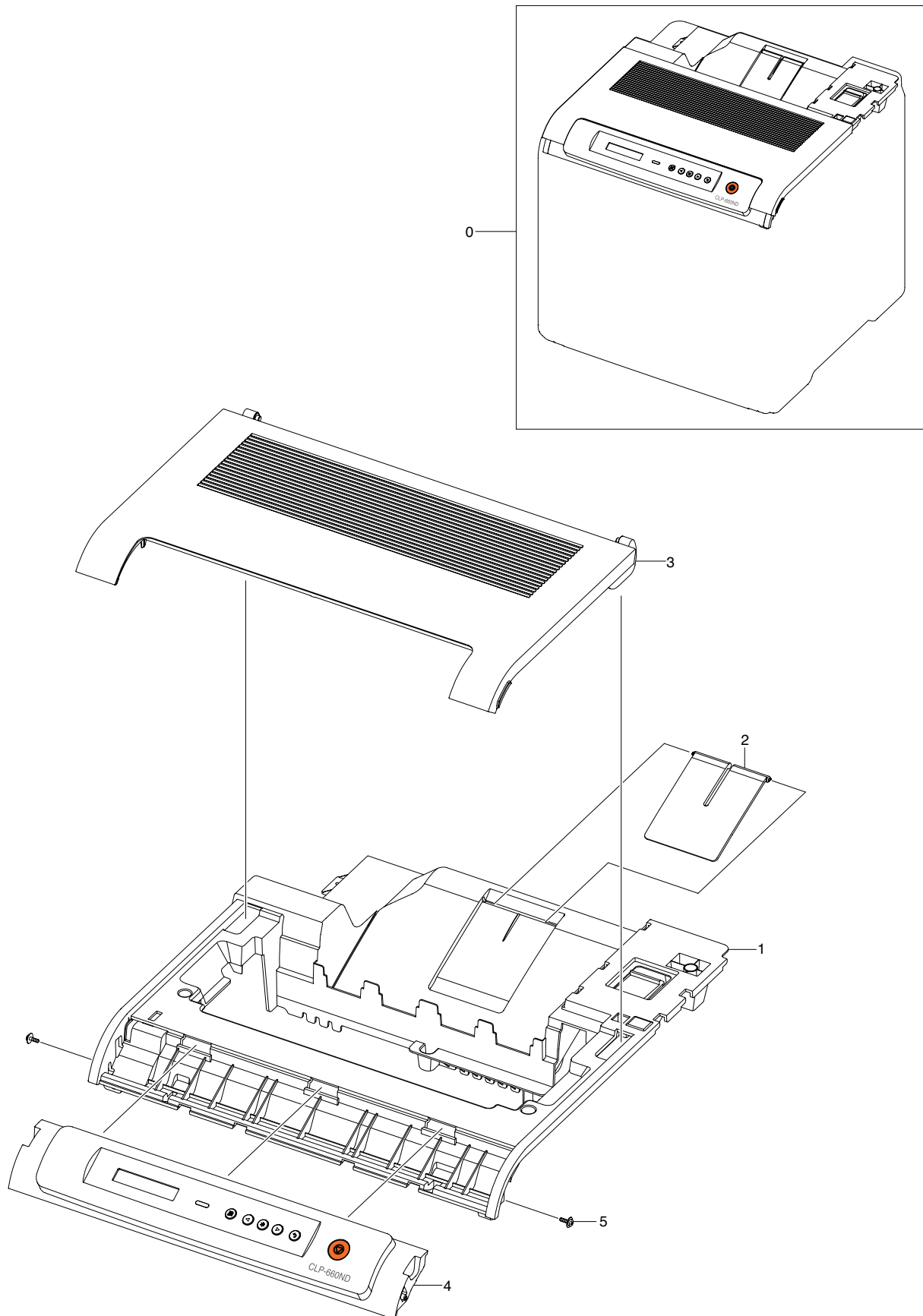
Top Coverr Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

Drawer#	SEC_Code	Description	QT'y	Service	Remark
5.3-0	JC96-04415A	ELA-COVER TOP	1	SA	CLP-660
5.3-0	JC96-04415B	ELA-COVER TOP	1	SA	CLP-660N
5.3-0	JC96-04415C	ELA-COVER TOP	1	SA	CLP-660ND
5.3-1	JC63-01278A	COVER-TOP	1	SA	
5.3-2	JC72-01346D	PMO-STACKER RX	1	SA	
5.3-3	JC97-02847A	MEA COVER-EXIT	1	SA	
5.3-4	JC96-04416A	ELA-OPE	1	SA	
5.3-5	6003-000196	SCREW-TAPTITE	2	SNA	

5.4 OPE Unit
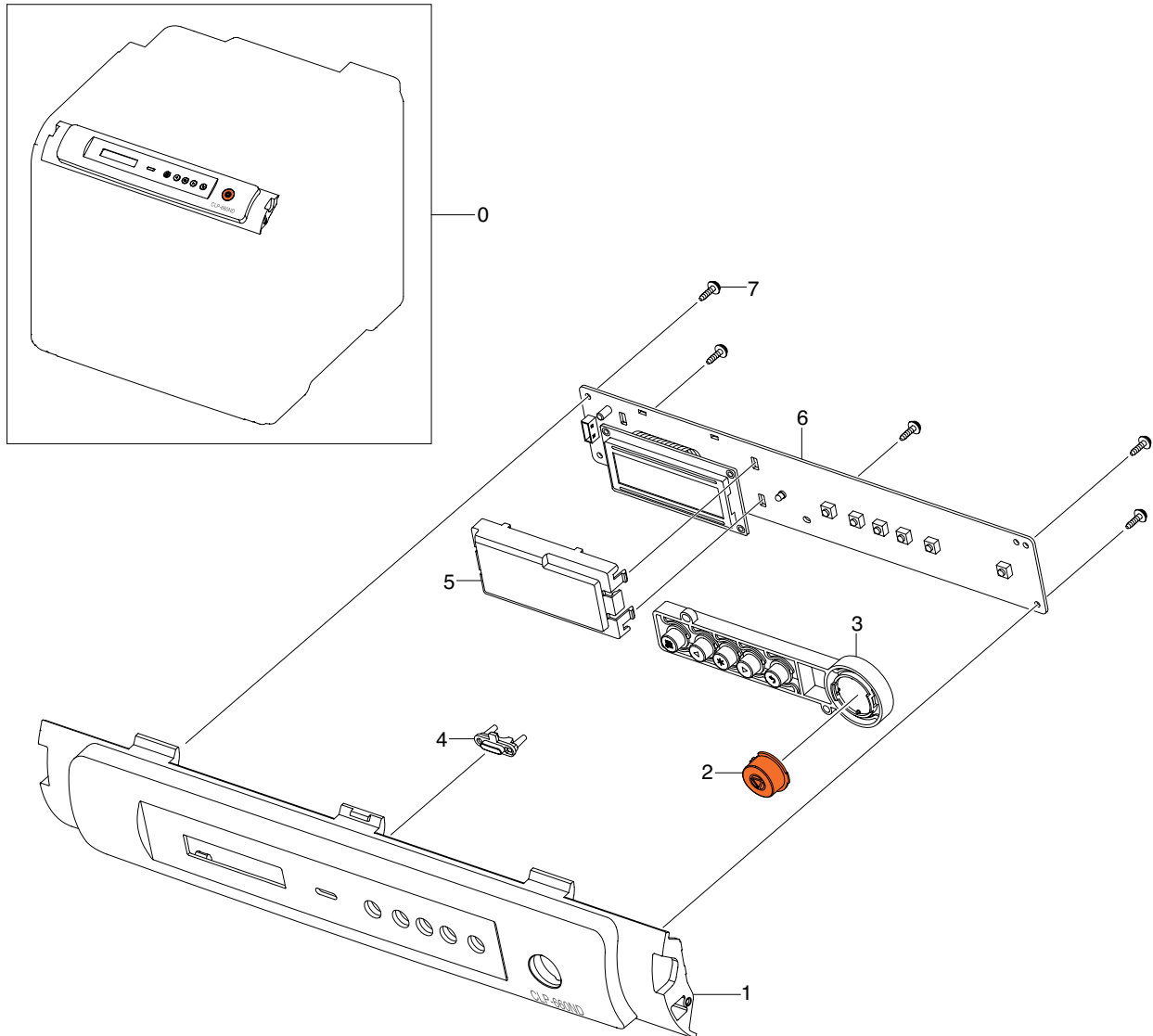
OPE Unit Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

Drawer#	SEC_Code	Description	QT'y	Service	Remark
5.4-0	JC96-04416A	ELA-OPE	1	SA	CLP-660
5.4-0	JC96-04416B	ELA-OPE	1	SA	CLP-660N
5.4-0	JC96-04416C	ELA-OPE	1	SA	CLP-660ND
5.4-1	JC63-01300A	COVER-OPE	1	SA	CLP-660
5.4-1	JC63-01300B	COVER-OPE	1	SA	CLP-660N
5.4-1	JC63-01300C	COVER-OPE	1	SA	CLP-660ND
5.4-2	JC64-00301A	KEY-STOP	1	SA	
5.4-3	JC64-00300A	KEY-MENU	1	SA	
5.4-4	JC67-00218A	LENS-STATUS	1	SA	
5.4-5	JC61-01847A	HOLDER-LCD	1	SA	
5.4-6	JC92-01872A	PBA SUB-OPE	1	SA	
5.4-7	6003-000196	SCREW-TAPTITE	5	SNA	

5.5 Front Cover
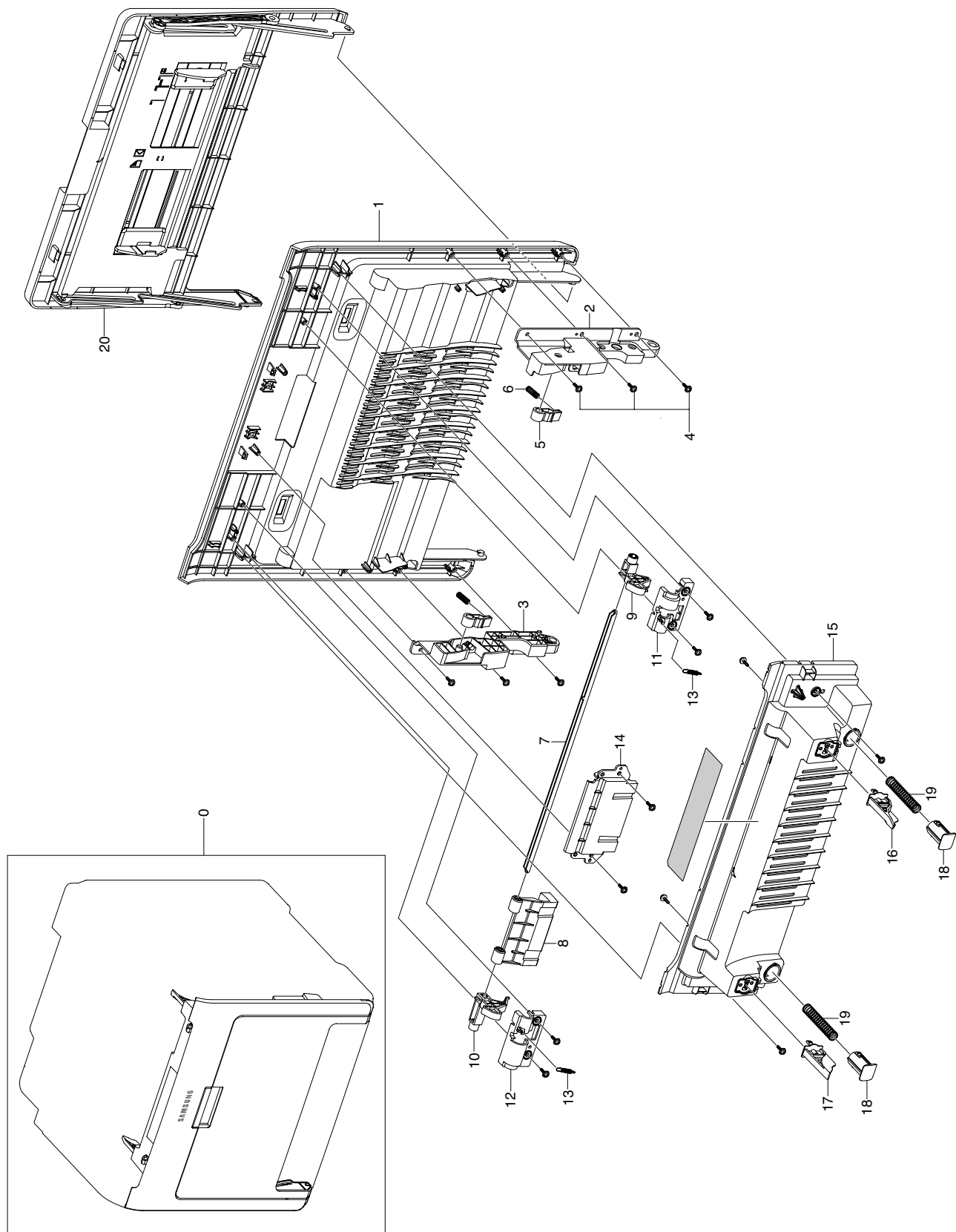
Front Cover Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

Drawer#	SEC_Code	Description	QT'y	Service	Remark
5.5-0	JC97-02846A	MEA-COVER FRONT	1	SA	
5.5-1	JC63-01274A	COVER-FRONT	1	SA	
5.5-2	JC61-01849A	SUPPORT-PTB R	1	SA	
5.5-3	JC61-01848A	SUPPORT-PTB L	1	SA	
5.5-4	6003-000196	SCREW-TAPTITE	14	SNA	
5.5-5	JC66-01354A	LEVER-PTB	2	SA	
5.5-6	JC61-00038A	SPRING ETC-GUIDE DEVE	2	SA	
5.5-7	JC61-01050A	BRACKET-P-COVER LOCK	1	SA	
5.5-8	JC64-00299A	KNOB-HANDLE	1	SA	
5.5-9	JC64-00306A	LOCKER-FRONT R	1	SA	
5.5-10	JC64-00305A	LOCKER-FRONT L	1	SA	
5.5-11	JC61-01843A	HOLDER-LOCKER FRONT R	1	SA	
5.5-12	JC61-01842A	HOLDER-LOCKER FRONT L	1	SA	
5.5-13	6107-001138	SPRING-ES	2	SA	
5.5-14	JC61-01841A	HOLDER-KNOB HANDLE	1	SA	
5.5-15	JC63-01290A	COVER-FRONT PATH	1	SA	
5.5-16	JC66-01353A	LEVER-COUPLING R	1	SA	
5.5-17	JC66-01352A	LEVER-COUPLING L	1	SA	
5.5-18	JC66-01421A	LEVER-PTB TOP	2	SA	
5.5-19	6107-001345	SPRING-CS	2	SA	
5.5-20	JC97-02894A	MEA-TRAY MP	1	SA	

5.6 Exit Cover
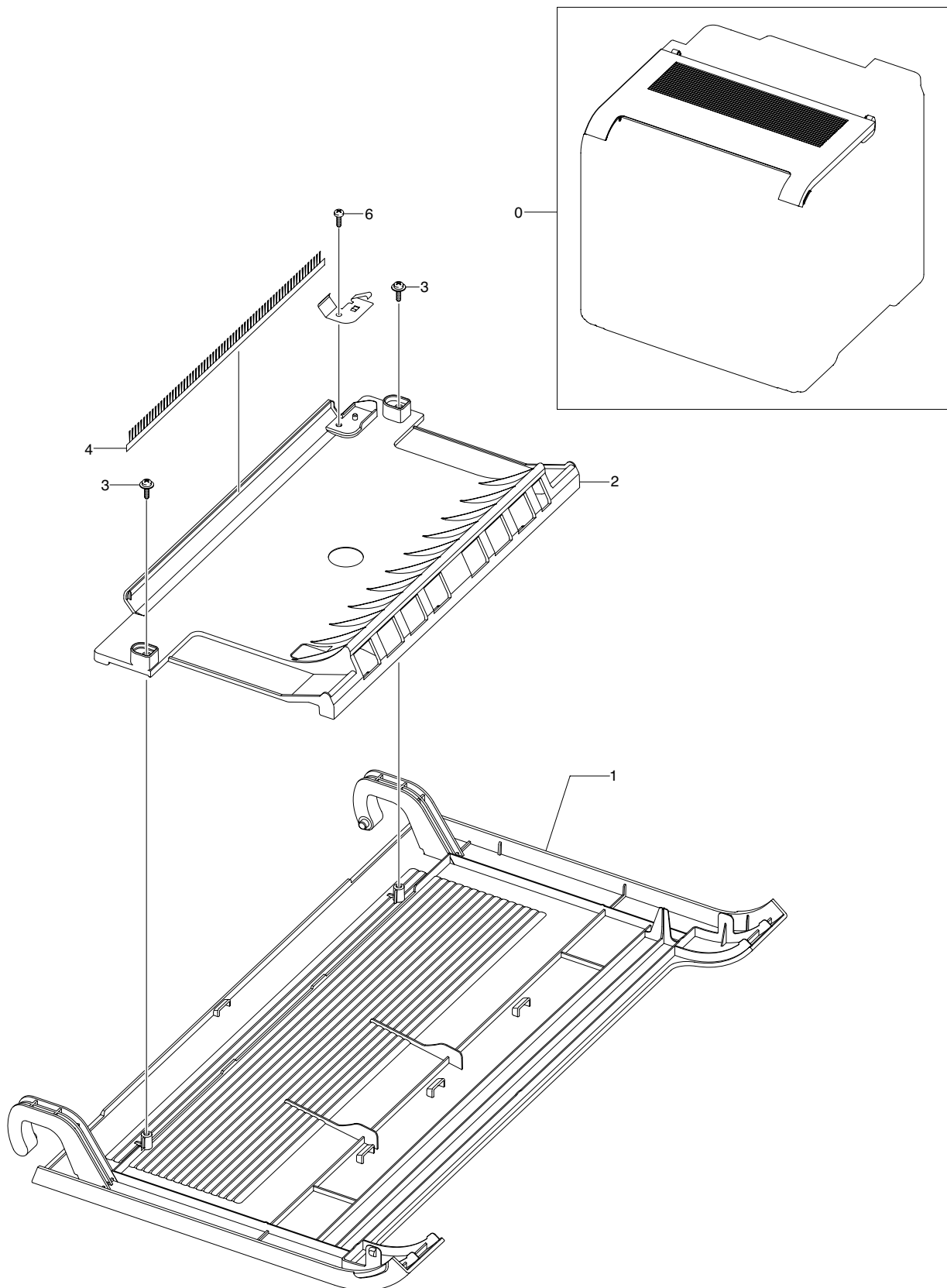
Exit Cover Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

Drawer#	SEC_Code	Description	QT'y	Service	Remark
5.6-0	JC97-02847A	MEA-COVER EXIT	1	SA	
5.6-1	JC63-01289A	COVER-EXIT	1	SA	
5.6-2	JC63-01299A	COVER-FUSER EXIT	1	SA	
5.6-3	6003-000196	SCREW-TAPTITE	2	SA	
5.6-4	JC75-00095A	MEC-BRUSH ANTISTATIC	1	SA	
5.6-5	JC63-01277A	GROUND-EXIT	1	SA	
5.6-6	6003-000282	SCREW-TAPTITE	1	SNA	

5.7 MP Tray
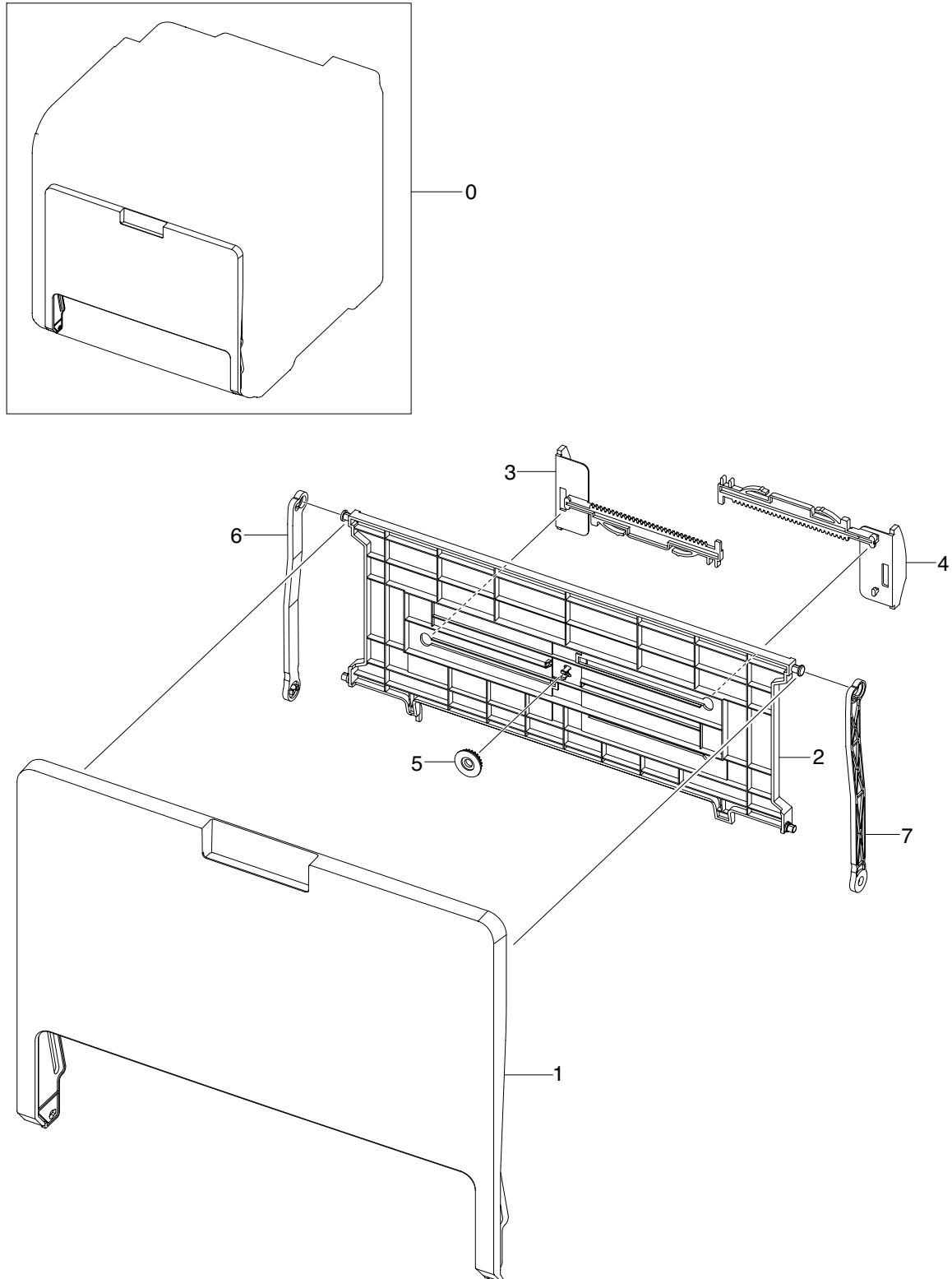
MP Tray Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

Drawer#	SEC_Code	Description	QT'y	Service	Remark
5.7-0	JC97-02894A	MEA-TRAY MP	1	SA	
5.7-1	JC63-01287A	COVER-MP_TRAY	1	SA	
5.7-2	JC63-01293A	TRAY-ASF_INPUT	1	SA	
5.7-3	JC66-01349A	LINK-TRAY_MP_L	1	SA	
5.7-4	JC66-01350A	LINK-TRAY_MP_R	1	SA	
5.7-5	JG66-40003A	GEAR-PINION	1	SA	
5.7-6	JC61-01043A	GUIDE-_M_SIDE MP L	1	SA	
5.7-7	JC61-01042A	GUIDE-_M_SIDE MP R	1	SA	

5.8 Frame
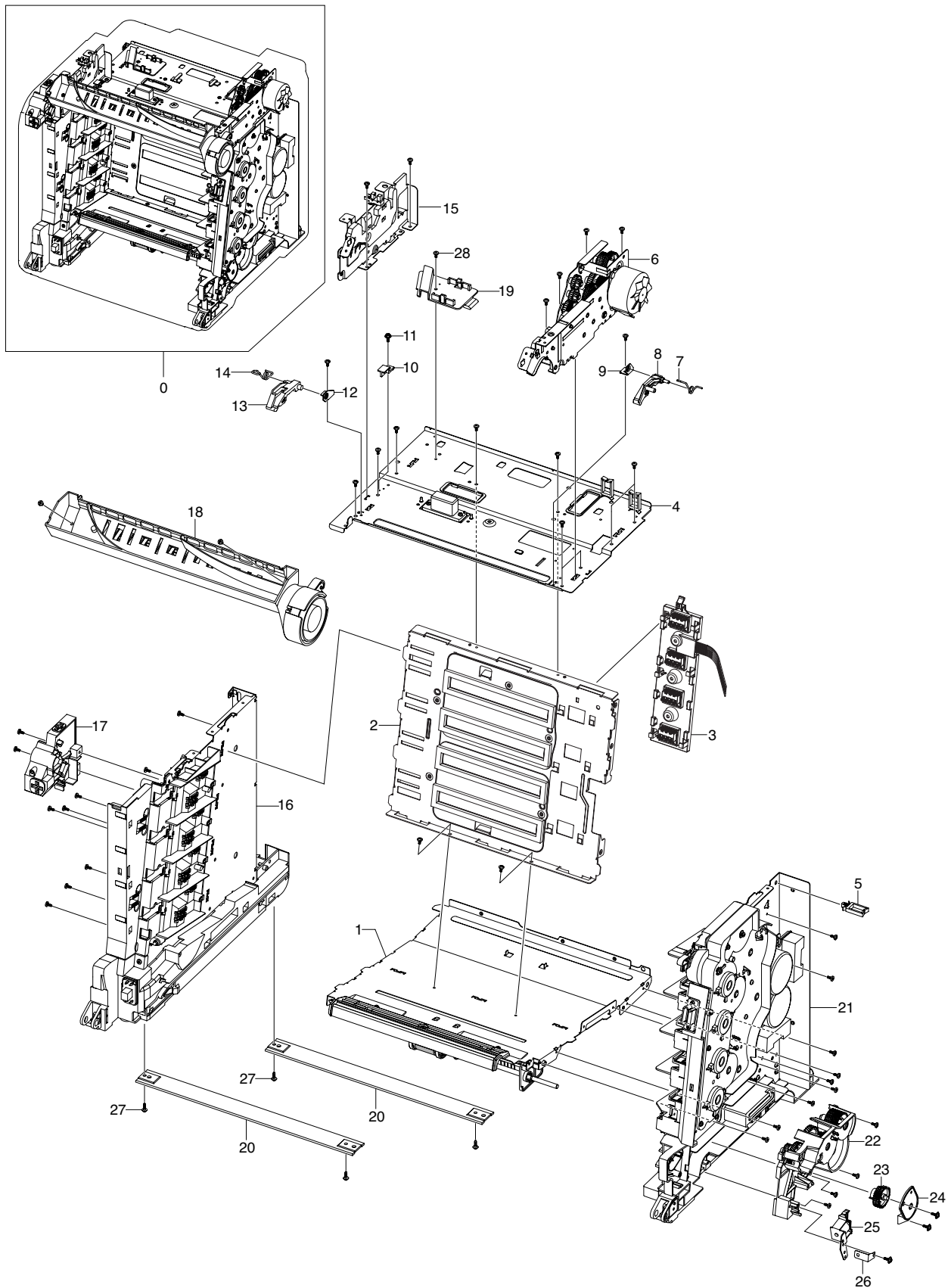
Frame Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

Drawer#	SEC_Code	Description	QT'y	Service	Remark
5.8-0	JC96-04490A	ELA UNIT-MAIN_FRAME	1	SA	CLP-660
5.8-0	JC96-04490B	ELA UNIT-MAIN_FRAME	1	SA	CLP-610
5.8-1	JC96-04480A	ELA UNIT-FRAME_BOTTOM	1	SA	
5.8-2	JC61-01927A	FRAME-LSU	1	SA	
5.8-3	JC96-04488A	ELA UNIT-DEVE_CRUM	1	SA	
5.8-4	JC96-04479A	ELA UNIT-FRAME_TOP	1	SA	
5.8-6	JC96-04501A	ELA UNIT-FUSER DRIVE	1	SA	
5.8-7	JC61-01879A	SPRING ETC-LOCK_PTB_R	1	SA	
5.8-8	JC64-00303A	LOCKER-PTB_R	1	SA	
5.8-9	JC61-01869A	BRACKET-LOCKER_PTB_R	1	SA	
5.8-10	JC66-01300A	LEVER-FUSER FRAME	1	SA	
5.8-11	6009-001492	SCREW-HEX;HWH,+,M3,L8,NI PLT,	1	SA	
5.8-12	JC61-01855A	BRACKET-LOCKER_PTB_L	1	SA	
5.8-13	JC64-00304A	LOCKER-PTB_L	1	SA	
5.8-14	JC61-01899A	SPRING ETC-LOCK_PTB_L	1	SA	
5.8-15	JC96-04481A	ELA UNIT-OPE_LEFT	1	SA	
5.8-16	JC96-04482A	ELA UNIT-FRAME_LEFT	1	SA	
5.8-17	JC97-02883A	MEA UNIT-COVER_OPEN	1	SA	
5.8-18	JC96-04487A	ELA UNIT-DUCT_FUSER	1	SA	
5.8-19	JC61-01890A	GUIDE-HARNESS_CABLE	1	SA	
5.8-20	JC71-00042A	BAR-P_CROSS BOTTOM	2	SA	
5.8-21	JC96-04485A	ELA UNIT-FRAME_RIGHT	1	SA	
5.8-22	JC97-02854A	MEA UNIT-FEED DRIVE	1	SA	
5.8-23	JC97-02895A	MEA-GEAR PICK UP	1	SA	
5.8-24	JC67-00215A	CAP-MAIN PICK-UP GEAR	1	SA	
5.8-25	JC33-00022A	SOLENOID-PICK_UP	1	SA	
5.8-26	JC61-01922A	PLATE-GND-SOLENOID	1	SA	
5.8-27	6003-000196	SCREW-TAPTITE;PWH,+,B,M3,L10,NI PLT,	7	SNA	
5.8-28	6003-000269	SCREW-TAPTITE;BH,+,-,S,M3,L6,ZPC(WHT),	49	SNA	
5.8-29	JC72-01379A	SPONGE-SEALING_LSU	4	SNA	

5.9 Feed Drive
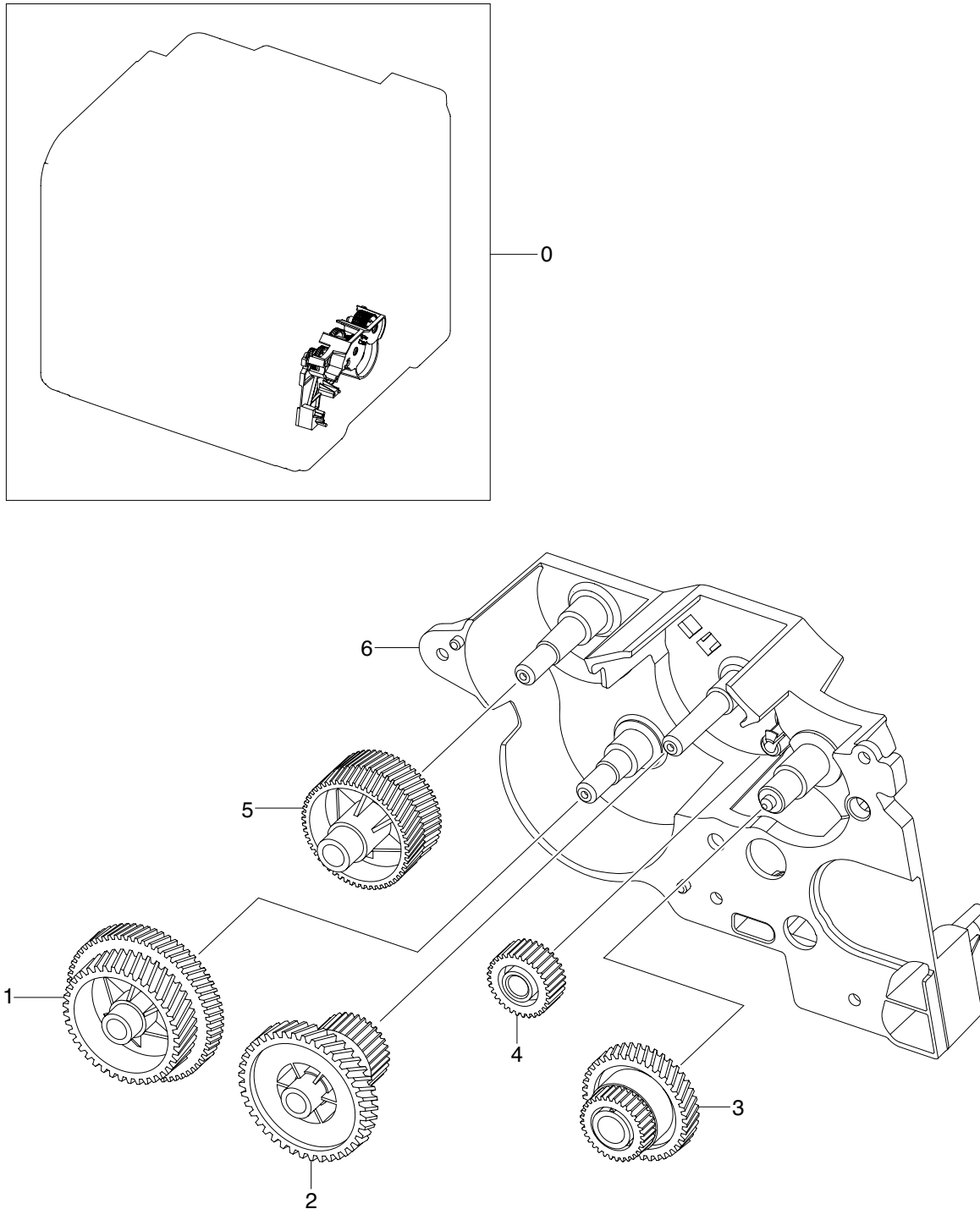
Feed Drive Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

Drawer#	SEC_Code	Description	QT'y	Service	Remark
5.9-0	JC97-02854A	MEA UNIT-FEED DRIVE	1	SA	
5.9-1	JC66-01385A	GEAR-RDCN FEED(79/39)	1	SA	
5.9-2	JC66-01383A	GEAR-RDCN FEED(43/23)	1	SA	
5.9-3	JC66-01382A	GEAR-RDCN FEED(35/22)	1	SA	
5.9-4	JC66-01363A	GEAR-DRV MAIN PICK-UP	1	SA	
5.9-5	JC66-01384A	GEAR-RDCN FEED(55/54)	1	SA	
5.9-6	JC61-01835A	BRACKET-FEED DRIVE	1	SA	
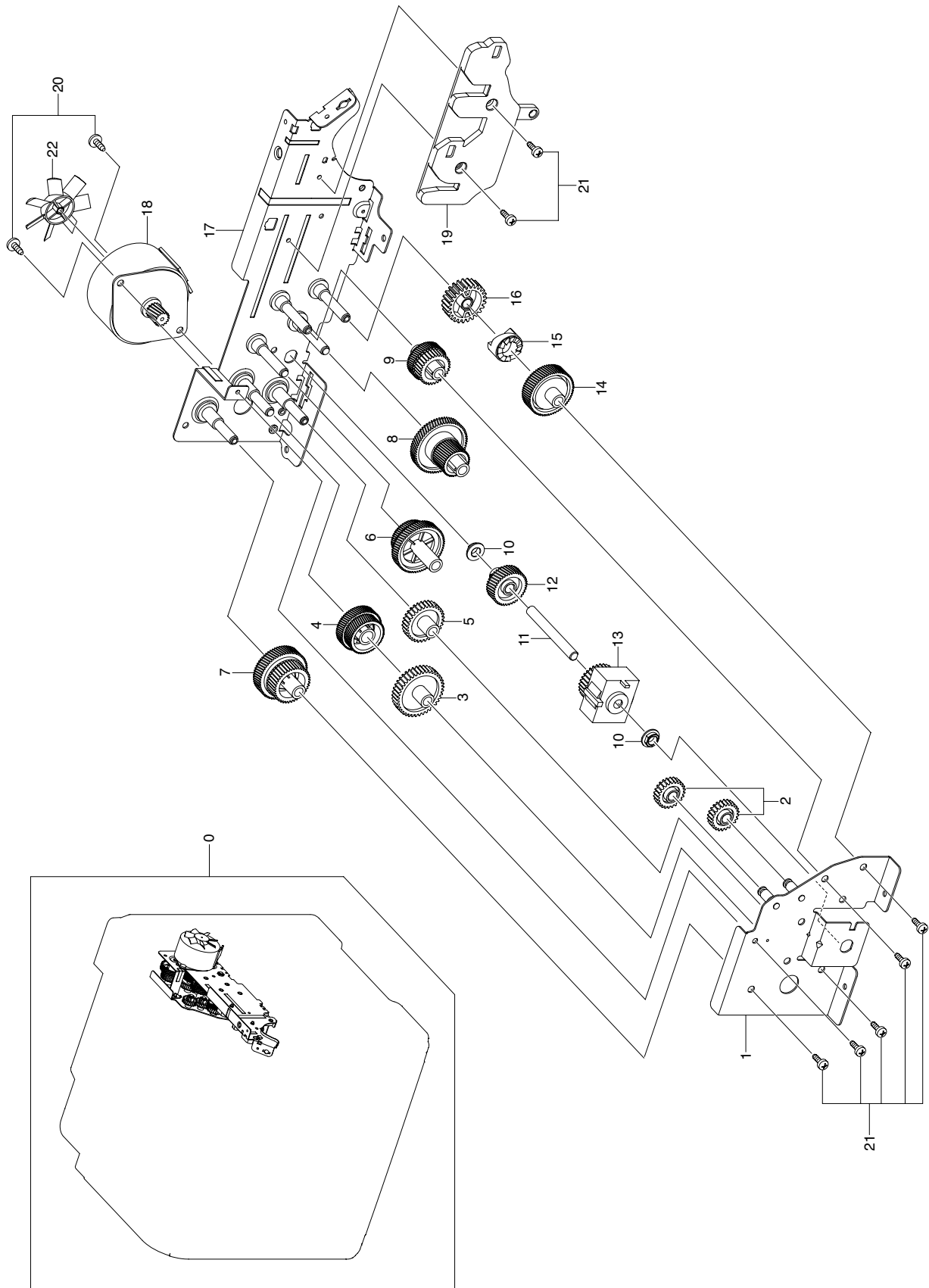
5.10 Fuser Drive

Fuser Drive Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

Drawer#	SEC_Code	Description	QT'y	Service	Remark
5.10-0	JC96-04501A	ELA UNIT-FUSER DRIVE	1	SA	
5.10-1	JC61-01859A	BRACKET-FUSER DRIVE L	1	SA	
5.10-2	JC66-01371A	GEAR-IDLE EXIT	2	SA	
5.10-3	JC66-01393A	GEAR-IDLE DEVE	1	SA	
5.10-4	JC66-01392A	GEAR-RDCN FU	1	SA	
5.10-5	JC66-01368A	GEAR-IDLE DEVE	1	SA	
5.10-6	JC66-01386A	GEAR- RDCN FU	1	SA	
5.10-7	JC66-01387A	GEAR-RDCN FU	1	SA	
5.10-8	JC66-01388A	GEAR-RDCN FU	1	SA	
5.10-9	JC66-01381A	GEAR-RDCN EXIT	1	SA	
5.10-10	JC61-00699A	BUSH-D6/L4	2	SA	
5.10-11	JC66-01341A	SHAFT-CLUTCH FU	1	SA	
5.10-12	JC66-01366A	GEAR-IDLE DEVE	1	SA	
5.10-13	JC47-00006D	CLUTCH-BK DEVE	1	SA	
5.10-14	JC66-01362A	GEAR-DRV FU	1	SA	
5.10-15	JC66-01070A	LATCH-M-HUB CLUTCH	1	SA	
5.10-16	JC66-01155A	GEAR-FUSER RDCN OUT V	1	SA	
5.10-17	JC61-01860A	BRACKET-FUSER DRIVE R	1	SA	
5.10-18	JC31-00076A	MOTOR STEP	1	SA	
5.10-19	JC61-01851A	GUIDE-FUSER R	1	SA	
5.10-20	6003-000301	SCREW-TAPTITE	2	SNA	
5.10-21	6003-000269	SCREW-TAPTITE	7	SNA	
5.10-22	JC72-00825A	PMO-IMPELLER_DRV	1	SA	

5.11 Fuser
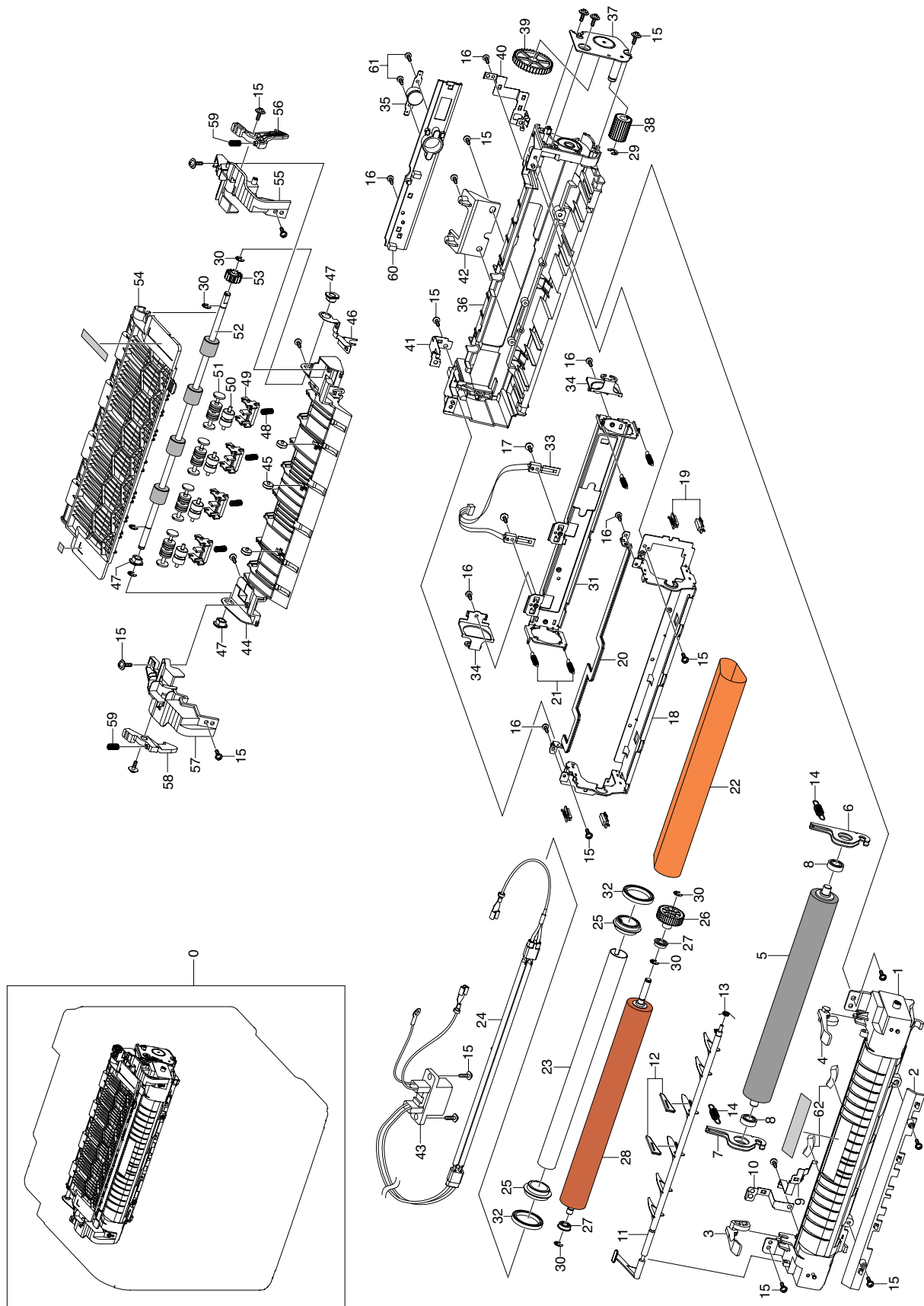
Fuser Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

Drawer#	SEC_Code	Description	QT'y	Service	Remark
5.11-0	JC96-04495A	ELA UNIT-FUSER LV,CLP-660	1	SA	110V
5.11-0	JC96-04496A	ELA UNIT-FUSER HV,CLP-660	1	SA	220V
5.11-0	JC96-04544A	ELA UNIT-FUSER LV,CLP-610	1	SA	110V
5.11-0	JC96-04545A	ELA UNIT-FUSER HV,CLP-610	1	SA	220V
5.11-1	JC63-01312A	COVER-FUSER_LOWER	1	SNA	
5.11-2	JC61-01933A	GUIDE-INPUT	1	SNA	
5.11-3	JC66-01417A	LEVER-JAM_L	1	SNA	
5.11-4	JC66-01416A	LEVER-JAM_R	1	SNA	
5.11-5	JC66-01412A	ROLLER-PRESSURE	1	SA	
5.11-6	JC61-01917A	BRACKET-PR_R	1	SNA	
5.11-7	JC61-01916A	BRACKET-PR_L	1	SNA	
5.11-8	6601-001341	BEARING-BALL	2	SA	
5.11-9	JC63-01308A	GROUND-PR	1	SNA	
5.11-10	JC63-01335A	GROUND-PR_SUB	1	SNA	
5.11-11	JC66-01404A	ACTUATOR-FUSER	1	SA	
5.11-12	JC61-01938A	GUIDE-ACTUATOR	2	SNA	
5.11-13	JC61-70903A	SPRING ETC-ACTUATOR	1	SA	
5.11-14	6107-001323	SPRING-ES	2	SA	
5.11-15	6003-000196	SCREW-TAPTITE	23	SNA	
5.11-16	6003-000269	SCREW-TAPTITE	6	SA	
5.11-17	6009-001492	SCREW-HEX	2	SNA	
5.11-18	JC61-01915A	BRACKET-FUSER	1	SNA	
5.11-19	JC61-01931A	HOLDER-BRACKET	4	SNA	
5.11-20	JC61-01921A	SUPPORT-BRACKET	1	SNA	
5.11-21	6107-001324	SPRING-ES	4	SA	
5.11-22	JC66-01413A	DRUM-FUSER_BELT	1	SNA	
5.11-23	JC66-01411A	ROLLER-HEAT	1	SA	
5.11-24	4713-001221	LAMP-HALOGEN,CLP-660	1	SA	220V
5.11-24	4713-001222	LAMP-HALOGEN,CLP-660	1	SA	110V
5.11-24	4713-001229	LAMP-HALOGEN,CLP-610	1	SA	220V
5.11-24	4713-001228	LAMP-HALOGEN,CLP-610	1	SA	110V
5.11-25	JC61-01928A	BUSH-HR	2	SNA	
5.11-26	JC66-01405A	GEAR-FUSER	1	SA	
5.11-27	6601-001478	BEARING-BALL	2	SNA	
5.11-28	JC66-01410A	ROLLER-FUSER	1	SNA	
5.11-29	6044-000231	RING-E	1	SNA	
5.11-30	6044-000125	RING-E	7	SA	
5.11-31	JC61-01918A	BRACKET-HR	1	SNA	
5.11-32	6601-001479	BEARING-BALL	2	SNA	
5.11-33	1404-001355	THERMISTOR-NTC ASSY	1	SA	
5.11-34	JC61-01920A	HOLDER-LAMP	2	SNA	
5.11-35	4712-001039	THERMOSTAT	1	SA	
5.11-36	JC63-01311A	COVER-FUSER_UPPER	1	SNA	
5.11-37	JC61-01919A	BRACKET-FU_DRIVE	1	SA	

Fuser Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

Drawer#	SEC_Code	Description	QT'y	Service	Remark
5.11-38	JC66-01406A	GEAR-IDLE Z15	1	SA	
5.11-39	JC66-01407A	GEAR-IDLE Z39	1	SA	
5.11-40	JC63-01309A	GROUND-UPPER	1	SNA	
5.11-41	JC63-01307A	GROUND-LOWER	1	SNA	
5.11-42	JC61-01929A	HOLDER-CONNECTOR	1	SNA	
5.11-43	JC39-00667A	HARNESS-FUSER DRAW_F,CLP-661	1	SNA	220V
5.11-43	JC39-00668A	HARNESS-FUSER DRAW_F,CLP-661	1	SNA	110V
5.11-43	JC39-00768A	HARNESS-FUSER DRAW_F,CLP-611	1	SNA	220V
5.11-43	-	HARNESS-FUSER DRAW_F,CLP-611	1	SNA	110V
5.11-44	JC61-01934A	GUIDE-OUTPUT	1	SNA	
5.11-45	JC66-00608A	ROLLER-EXIT IDLE	3	SNA	
5.11-46	JC63-01310A	GROUND-EXIT	1	SNA	
5.11-47	JC61-00423A	BUSH-6_D	3	SA	
5.11-48	JC61-70911A	SPRING ETC-EXIT ROLL FD	4	SA	
5.11-49	JC61-00547A	HOLDER-EXIT(MC)	4	SNA	
5.11-50	JC66-01233A	ROLLER-FD R	4	SNA	
5.11-51	JC72-41007A	PMO-ROLLER FD F	4	SA	
5.11-52	JC66-01415A	ROLLER-EXIT	1	SA	
5.11-53	JC66-00782A	GEAR-_M_EXIT	1	SA	
5.11-54	JC61-01935A	GUIDE-DUPLEX	1	SA	
5.11-55	JC64-00311A	HANDLE-FUSER_R	1	SNA	
5.11-56	JC64-00309A	LOCKER-FUSER_R	1	SNA	
5.11-57	JC64-00312A	HANDLE-FUSER_L	1	SNA	
5.11-58	JC64-00310A	LOCKER-FUSER_L	1	SNA	
5.11-59	JC61-00550A	SPRING ETC-DEVE REAR	2	SA	
5.11-60	JC61-01930A	HOLDER-HARNESS	1	SNA	
5.11-61	6003-000282	SCREW-TAPTITE	2	SNA	
5.11-62	JC63-00903	FELT-CLEAN TONER	2	SA	

5.12 PTB Unit
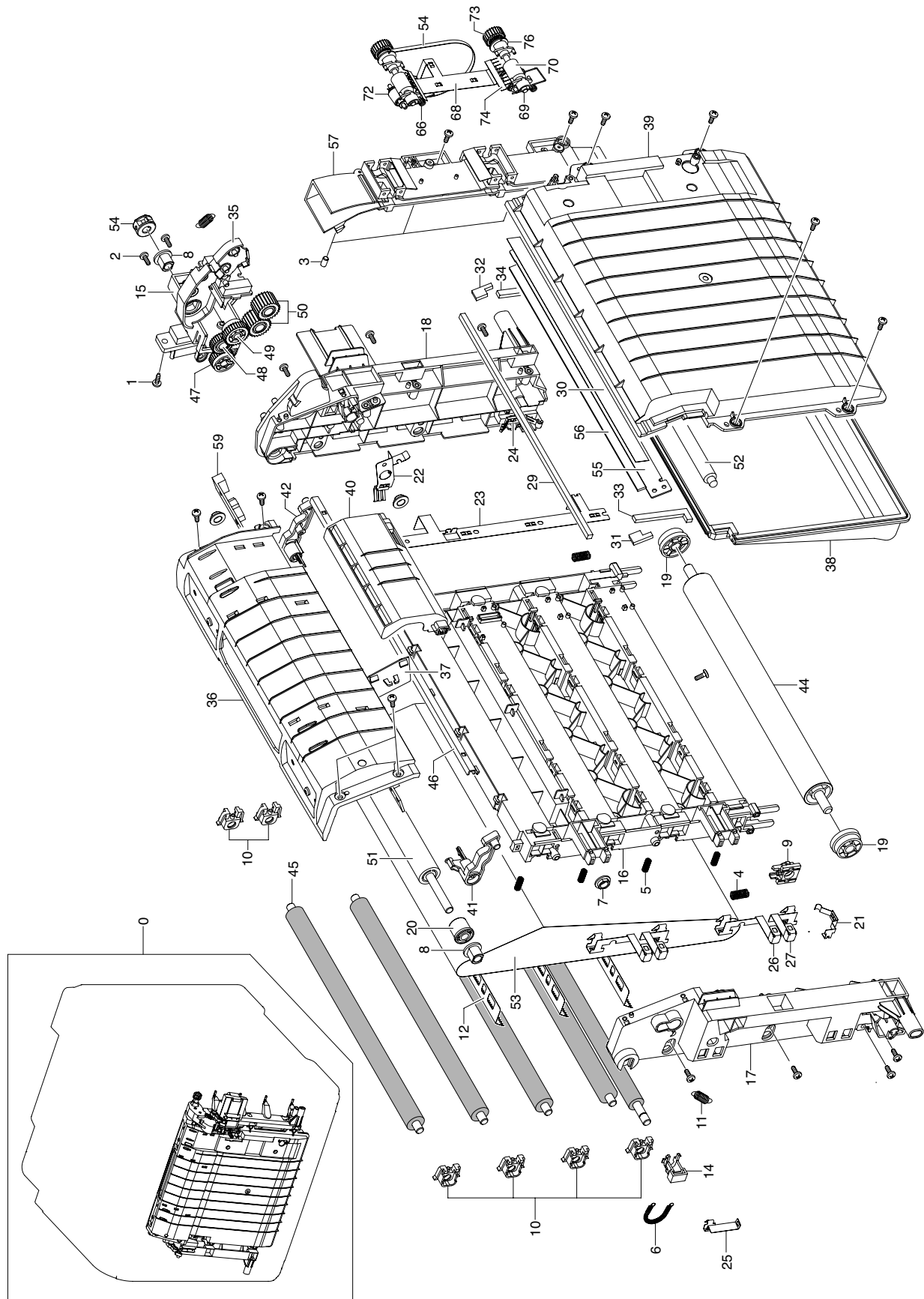
PTB Unit Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

Drawer#	SEC_Code	Description	QT'y	Service	Remark
5.12-0	JC96-04406A	ELA UNIT-PTB SET_DUPLEX	1	SNA	
5.12-1	6003-000196	SCREW-TAPTITE	7	SNA	
5.12-2	6003-000282	SCREW-TAPTITE	19	SNA	
5.12-3	6043-001097	PIN-SPRING	2	SNA	
5.12-4	6107-001364	SPRING-CS	2	SNA	
5.12-5	6107-001365	SPRING-CS	8	SNA	
5.12-6	6107-001316	SPRING-ES	2	SNA	
5.12-7	JC61-00699A	BUSH-D6/L4	3	SNA	
5.12-8	JC61-00884A	BUSH-6_D(L)	2	SNA	
5.12-9	JC61-01092A	HOLDER-M-TENSION	2	SNA	
5.12-10	JC61-01093A	HOLDER-M-TRANSFER	8	SNA	
5.12-11	JC61-01678A	SPRING ETC-DEV_FRONT	2	SNA	
5.12-12	JC61-01754A	PLATE-SAW FUSER	3	SNA	
5.12-13	JC61-01820A	HOLDER-PAPER C,L	1	SNA	
5.12-14	JC61-01821A	HOLDER-PAPER C,R	1	SNA	
5.12-15	JC61-01822A	HOLDER-DRAW	1	SNA	
5.12-16	JC61-01823A	FRAME-PTB	1	SNA	
5.12-17	JC61-01824A	FRAME-DUMMY,L	1	SNA	
5.12-18	JC61-01825A	FRAME-DUMMY,R	1	SNA	
5.12-19	JC61-01826A	GUIDE-BELT	1	SNA	
5.12-20	JC61-01827A	GUIDE-DRIVE	2	SNA	
5.12-21	JC61-01828A	PLATE-DUMMY TENSION	1	SNA	
5.12-22	JC61-01829A	PLATE-GROUND BACKUP	1	SNA	
5.12-23	JC61-01830A	PLATE-GROUND PTB	1	SNA	
5.12-24	JC61-01831A	PLATE-GROUND TENSION	1	SNA	
5.12-25	JC61-01832A	PLATE-HV PCR	1	SNA	
5.12-26	JC61-01833A	PLATE-HV TR_M	2	SNA	
5.12-27	JC61-01834A	PLATE-HV TR_Y	2	SNA	
5.12-28	JC61-02179A	PLATE-GND RESISTANCE	1	SNA	
5.12-29	JC62-00163A	SEAL-WASTE BOTTOM	1	SNA	
5.12-30	JC62-00166A	SEAL-WASTE FILM	1	SNA	
5.12-31	JC62-00355A	SEAL-BLADE PTB,L	1	SNA	
5.12-32	JC62-00356A	SEAL-BLADE PTB,R	1	SNA	
5.12-33	JC62-00357A	SEAL-BRKT PTB,L	1	SNA	
5.12-34	JC62-00358A	SEAL-BRKT PTB,R	1	SNA	
5.12-35	JC63-01267A	COVER-DUPLEX GEAR	1	SNA	
5.12-36	JC63-01268A	COVER-UPPER PTB	1	SNA	
5.12-37	JC63-01269A	COVER-HANDLE INNER	1	SNA	
5.12-38	JC63-01270A	COVER-WASTE TONER,L	1	SNA	
5.12-39	JC63-01271A	COVER-WASTE TONER,U	1	SNA	
5.12-40	JC64-00296A	HANDLE-LOCKER PTB	1	SNA	
5.12-41	JC64-00297A	LOCKER-PTB,L	1	SNA	
5.12-42	JC64-00298A	LOCKER-PTB,R	1	SNA	
5.12-43	JC66-00918A	ROLLER-PAPER CHARGE	1	SNA	

PTB Unit Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

Drawer#	SEC_Code	Description	QT'y	Service	Remark
5.12-44	JC66-00920A	ROLLER-TENSION,PTB	1	SNA	
5.12-45	JC66-00922B	ROLLER-TRANSFER	4	SNA	
5.12-46	JC66-01089A	SHAFT-P-LOCKBAR REAR	1	SNA	
5.12-47	JC66-01322A	GEAR-DUP DRIVE Z34	1	SNA	
5.12-48	JC66-01323A	GEAR-DUP IDLE Z33	1	SNA	
5.12-49	JC66-01324A	GEAR-DUP RDCN Z2923	1	SNA	
5.12-50	JC66-01325A	GEAR-DUP IDLE Z21	2	SNA	
5.12-51	JC66-01331A	ROLLER-DRIVE PTB	1	SNA	
5.12-52	JC66-01332A	ROLLER-BACKUP CLEAN	1	SNA	
5.12-53	JC66-01333A	DRUM-PTB BELT	1	SNA	
5.12-54	JC67-00213A	COUPLER-PTB	1	SNA	
5.12-55	JC97-02247B	MEA UNIT-CLEANING PTB	1	SNA	
5.12-56	JC61-01109A	BRACKET-P-CLN,PTB	1	SNA	
5.12-57	JC61-01280B	BLADE-CLEANING PTB	1	SNA	
5.12-58	JC92-01868A	PBA SUB-PTB CRUM	1	SNA	
5.12-59	JC32-00006A	SENSOR-CTD	2	SNA	
5.12-60	JC39-00664A	HARNESS-PTB DRAW_P	1	SNA	
5.12-61	JC39-00653A	HARNESS-ACR_SENSOR	1	SNA	
5.12-62	2009-001197	R-METAL GLAZE	1	SNA	
5.12-63	JC97-02898A	MEA UNIT-DUPLEX	1	SNA	
5.12-64	6602-001084	BELT-TIMING GEAR	1	SNA	
5.12-65	JC61-00665A	BUSH-M-FEED, DUP	4	SNA	
5.12-66	JC61-01277A	SPRING ETC-DUP	2	SNA	
5.12-67	JC61-01839A	GUIDE-ALIGN-DUP	1	SNA	
5.12-68	JC63-01297A	GROUND-ALIGN_DUP	1	SNA	
5.12-69	JC66-00444A	SHAFT-IDLE ROLL, DUP	2	SNA	
5.12-70	JC66-00896A	ROLLER-M-IDLE_ DUP	2	SNA	
5.12-71	JC66-00900A	PULLEY-M-18-DUMMY_DUP	2	SNA	
5.12-72	JC66-00901A	ROLLER-FEED_DUP	2	SNA	
5.12-73	JC66-01400A	GEAR	2	SNA	
5.12-74	JC67-00205A	BRUSH-DUPLEX	2	SNA	
5.12-75	JC70-00457A	ICT-STUD PAPER GUIDE, DP	3	SNA	
5.12-76	JK72-00058A	PCT-SILP WASHER	4	SNA	

5.13 Cassette
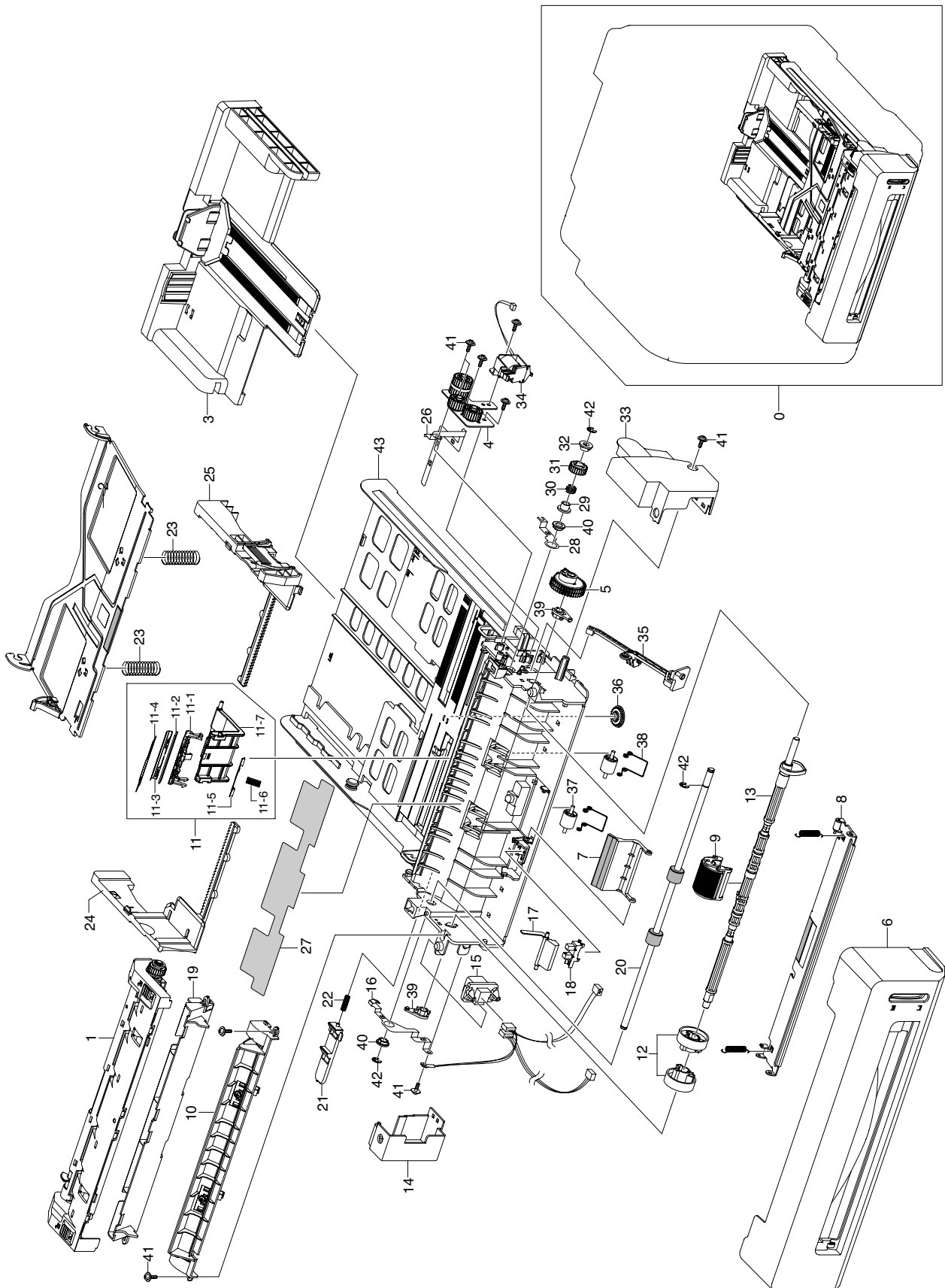
Cassette Parts List
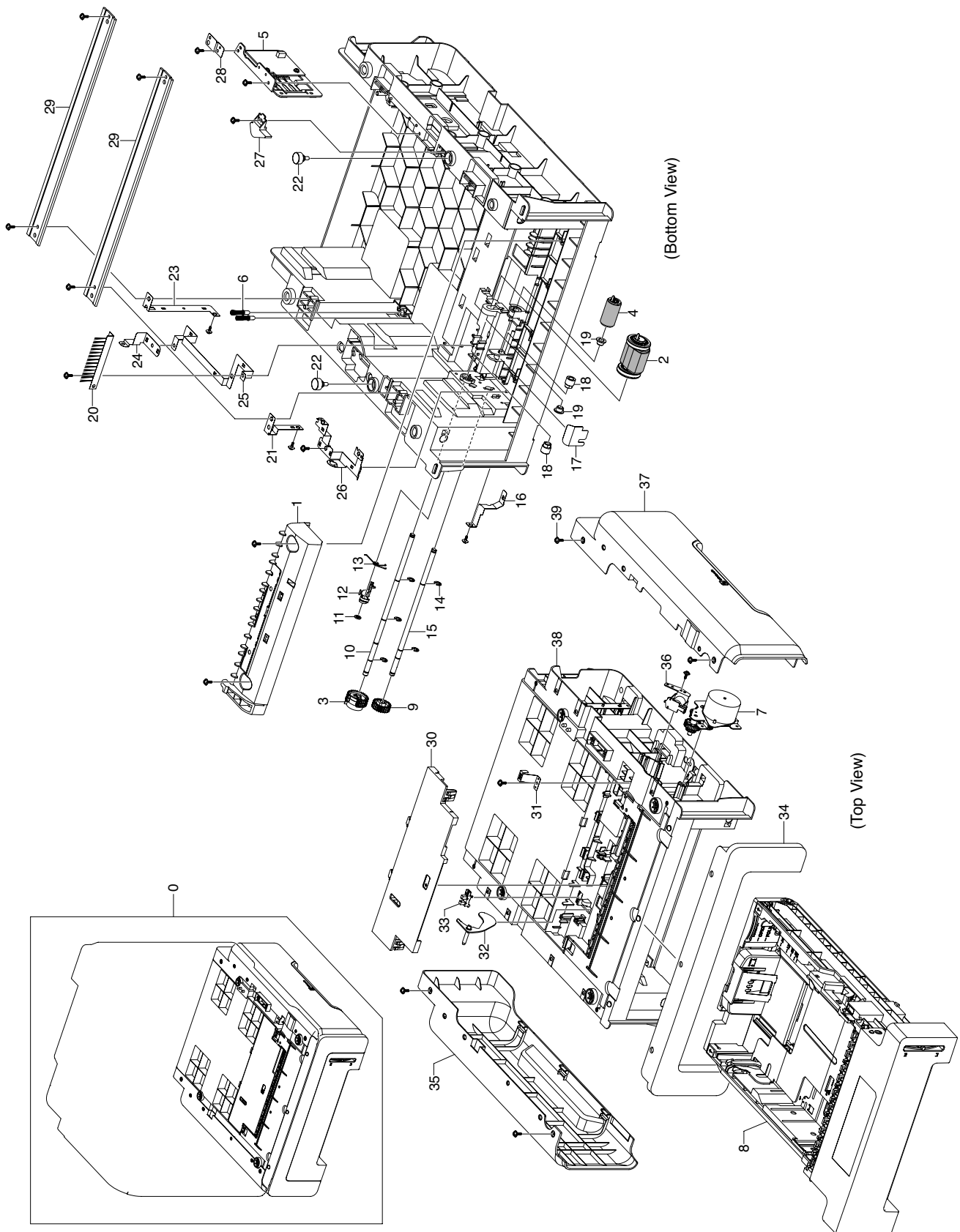
SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

Drawer#	SEC_Code	Description	QT'y	Service	Remark
5.13-0	JC96-04498A	ELA HOU-UNIT_CASSETTE	1	SNA	
5.13-1	JC97-02897A	MEA UNIT-REGISTRATION	1	SA	
5.13-2	JC97-02888A	MEA-KNOCK_UP_PLATE	1	SNA	
5.13-3	JC97-02887A	MEA-GUIDE_EXETENSION	1	SNA	
5.13-4	JC97-02889A	MEA UNIT-GEAR_BASE	1	SNA	
5.13-5	JC97-02893A	MEA-GEAR PICKUP_MP	1	SNA	
5.13-6	JC97-02885A	MEA-COVER_CASSETTE	1	SNA	
5.13-7	JC97-02892A	MEA-HOLDER PAD_MP	1	SNA	
5.13-8	JC97-02891A	MEA-KNOCK_UP PLATE_MP	1	SNA	
5.13-9	JC96-02686B	ELA UNIT-ROLLER P/UP MP	1	SA	
5.13-10	JC97-02890A	MEA-GUIDE PAPER DUP	1	SNA	
5.13-11	JC97-03077A	MEA-HOLDER_PAD_SHEET	1	SA	
5.13-11-1	JC61-02159A	HOLDER-PAD	1	SNA	
5.13-11-2	JC73-00140A	RPR-FRICTION PAD	1	SNA	
5.13-11-3	JC61-02237A	PLATE-PAD	1	SNA	
5.13-11-4	JC63-01669A	SHEET PAD	1	SNA	
5.13-11-5	JC63-01205A	GROUND-PAD	1	SNA	
5.13-11-6	JC61-70911A	SPRING ETC-EXIT ROLL FD	1	SNA	
5.13-11-7	JC61-01978A	HOUSING-HOLDER PAD	1	SNA	
5.13-12	JC72-01003A	PMO-IDLE PICK UP MP	2	SA	
5.13-13	JC66-01348A	SHAFT-MP_PICK_UP	1	SNA	
5.13-14	JC63-01286A	COVER-DRAW_CONNECTOR	1	SNA	
5.13-15	JC39-00659A	HARNESS-MP DRAWER_MP	1	SNA	
5.13-16	JC63-01282A	GROUND-REGI_BRKT	1	SNA	
5.13-17	JC66-01403A	ACTUATOR-FEED_EMPTY	1	SNA	
5.13-18	0604-001095	PHOTO-INTERRUPTER	1	SA	
5.13-19	JC61-01865A	GUIDE-PAPER_MPF	1	SNA	
5.13-20	JC66-01347A	ROLLER-FEED	1	SNA	
5.13-21	JC72-00972A	PMO-PLATE_LOCKER	1	SA	
5.13-22	JG61-70531A	SPRING ETC-LOCKER,PLATE	1	SA	
5.13-23	6107-001166	SPRING-CS	2	SA	
5.13-24	JC70-00300A	ADJUST-M-CASSETTE_L	1	SNA	
5.13-25	JC70-00301A	ADJUST-M-CASSETTE_R	1	SA	
5.13-26	JC61-01940A	PLATE-GND_KNOCKUP	1	SNA	
5.13-27	JC63-01291A	SHEET-MPF	1	SNA	
5.13-28	JC61-01923A	PLATE-GND-BRKT-GEAR	1	SNA	
5.13-29	JC61-01128A	HOLDER-_M_GEAR REGI	1	SA	
5.13-30	6107-001249	SPRING-CS	1	SNA	
5.13-31	JC66-00774A	GEAR-M-REGI	1	SA	
5.13-32	JC61-01127A	HOLDER-_M_CLUTCH GEAR	1	SA	
5.13-33	JC63-01285A	COVER-GEAR_BOX	1	SNA	
5.13-34	JC33-00022A	SOLENOID-PICK_UP	1	SNA	
5.13-35	JC66-01355A	LEVER-LINK_INDICATOR	1	SNA	
5.13-36	JG66-40003A	GEAR-PINION	1	SA	

Cassette Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

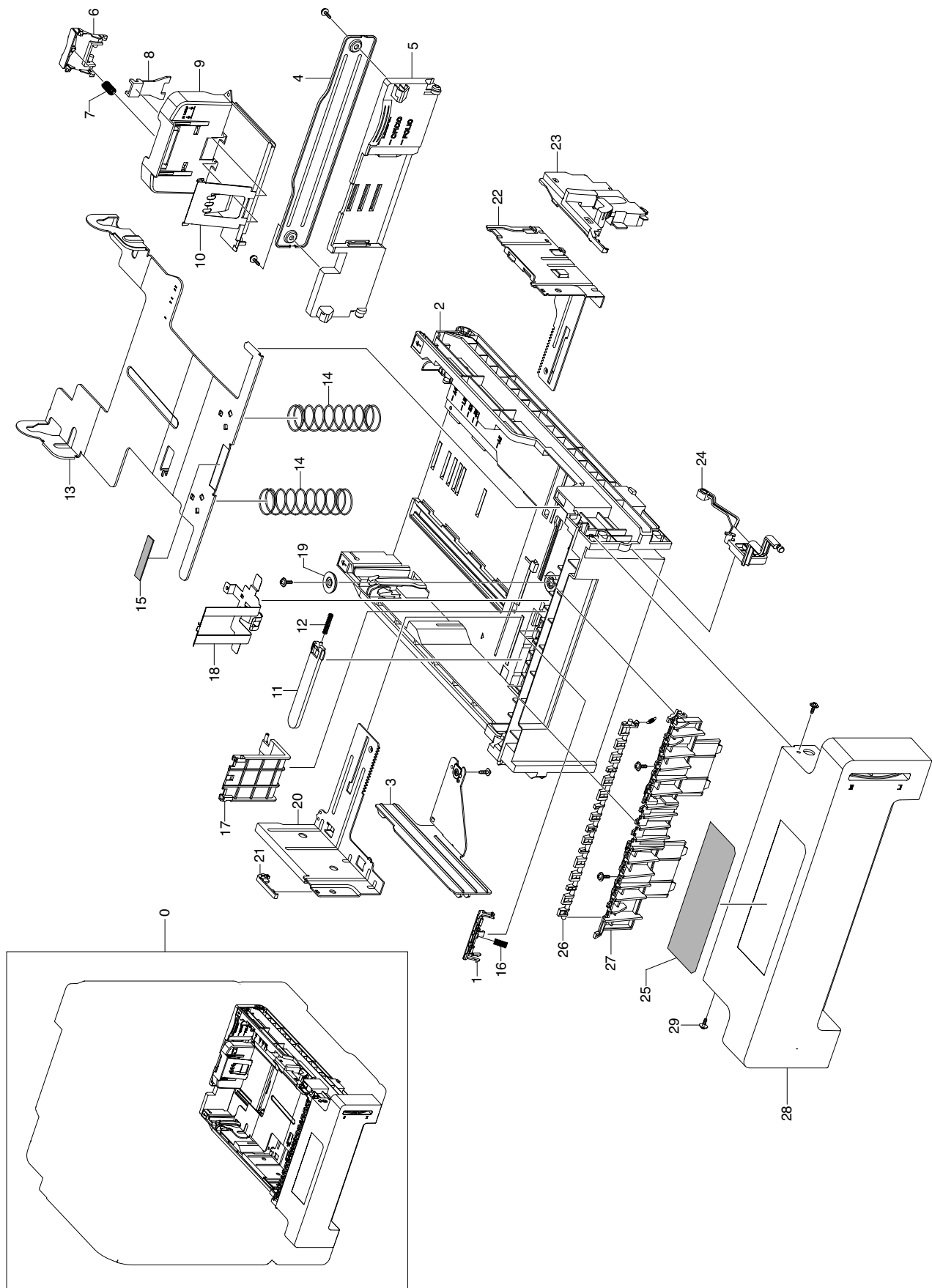| Drawer#	SEC_Code	Description	QT'y	Service	Remark
5.13-37	JC66-00764A	ROLLER-IDLE FEED	2	SA	
5.13-38	JC61-01274A	SPRING ETC-ROLLER	2	SA	
5.13-39	JC72-41191B	PMO-BEARING SHAFT	2	SA	
5.13-40	JC61-00699A	BUSH-D6/L4	2	SA	
5.13-41	6003-000196	SCREW-TAPTITE	10	SNA	
5.13-42	6044-000125	RING-E	3	SA	
5.13-43	JC61-01856A	FRAME-CASSETTE	1	SA	

5.14 SCF Unit

(Bottom View)

(Top View)

SCF Unit Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

Drawer#	SEC_Code	Description	QT'y	Service	Remark
5.14-0	JC96-04502A	ELA HOU-UNIT_SCF			
5.14-1	JC96-04019A	ELA UNIT-IDLE_SCF	1	SA	
5.14-2	JC97-02233A	MEA UNIT-P/UP_HOUSING	1	SA	
5.14-3	JC97-02691A	MEA UNIT-GEAR_PICK_UP	1	SA	
5.14-4	JC81-03458A	AS-UNIT_FEED1	1	SA	
5.14-5	JC96-02127A	ELA HOU-CST SENSOR HAWK16	1	SA	
5.14-6	JC97-01401A	MEA UNIT-TERMINAL:TR	4	SA	
5.14-7	JC96-03956A	ELA UNIT-MOTOR SCF	1	SA	
5.14-8	JC96-04503A	ELA HOU-UNIT_CASSETTE	1	SNA	
5.14-9	JC66-01262A	GEAR-FEED	1	SNA	
5.14-10	JC66-01277A	SHAFT-PICK UP_SCF	1	SA	
5.14-11	6044-000001	RING-CS	1	SNA	
5.14-12	JC61-01743A	HOLDER-PICK_UP_SCF	1	SNA	
5.14-13	6107-001170	SPRING-TS	1	SA	
5.14-14	6044-000125	RING-E	5	SA	
5.14-15	JC66-01276A	SHAFT-FEED_SCF	1	SA	
5.14-16	JC63-01137A	GROUND-P_MOTOR_SCF	1	SNA	
5.14-17	JC63-01163A	SHEET-GUIDE_PATH	1	SA	
5.14-18	JC61-01579A	HOLDER-P-REGI	2	SNA	
5.14-19	JC66-10202A	BEARING-PICK UP	2	SA	
5.14-20	JC67-00204A	BRUSH-PICK	1	SA	
5.14-21	JC63-01136A	GROUND-P_FRONT_BOTTOM	1	SNA	
5.14-22	JC61-40001A	FOOT-ML80	2	SA	
5.14-23	JC63-01140A	GROUND-P_REAR_BOTTOM	1	SNA	
5.14-24	JC61-01904A	PLATE-GND_REAR_TOP	1	SNA	
5.14-25	JC61-01903A	PLATE-GND_FRAME_SCF	1	SNA	
5.14-26	JC63-01141A	GROUND-P_SHAFT	1	SNA	
5.14-27	JC72-01355A	PMO-REMOVE_LOCK_CST	1	SA	
5.14-28	JC63-00675A	GROUND-P-PAPER_SIZE	1	SNA	
5.14-29	JC71-00042A	BAR-P_CROSS BOTTOM	2	SA	
5.14-30	JC63-00686A	COVER-M-DUMMY_SCF	1	SNA	
5.14-31	JC70-11028A	IPR-GROUND TOP	1	SNA	
5.14-32	JC72-00992A	PMO-ACTUATOR EMPTY,SCF	1	SA	
5.14-33	0604-001095	PHOTO-INTERRUPTER	1	SA	
5.14-34	JC63-01305A	COVER-FRONT_SCF	1	SNA	
5.14-35	JC63-01303A	COVER-LEFT_SCF	1	SNA	
5.14-36	JC33-00012A	SOLENOID-MAIN	1	SA	
5.14-37	JC63-01304A	COVER-RIGHT_SCF	1	SNA	
5.14-38	JC61-01902A	FRAME-SCF	1	SNA	
5.14-39	6003-000196	SCREW-TAPTITE	24	SNA	

5.15 SCF Cassette

SCF Cassette Parts List

SA : SERVICE AVAILABLE, SNA : SERVICE not AVAILABLE

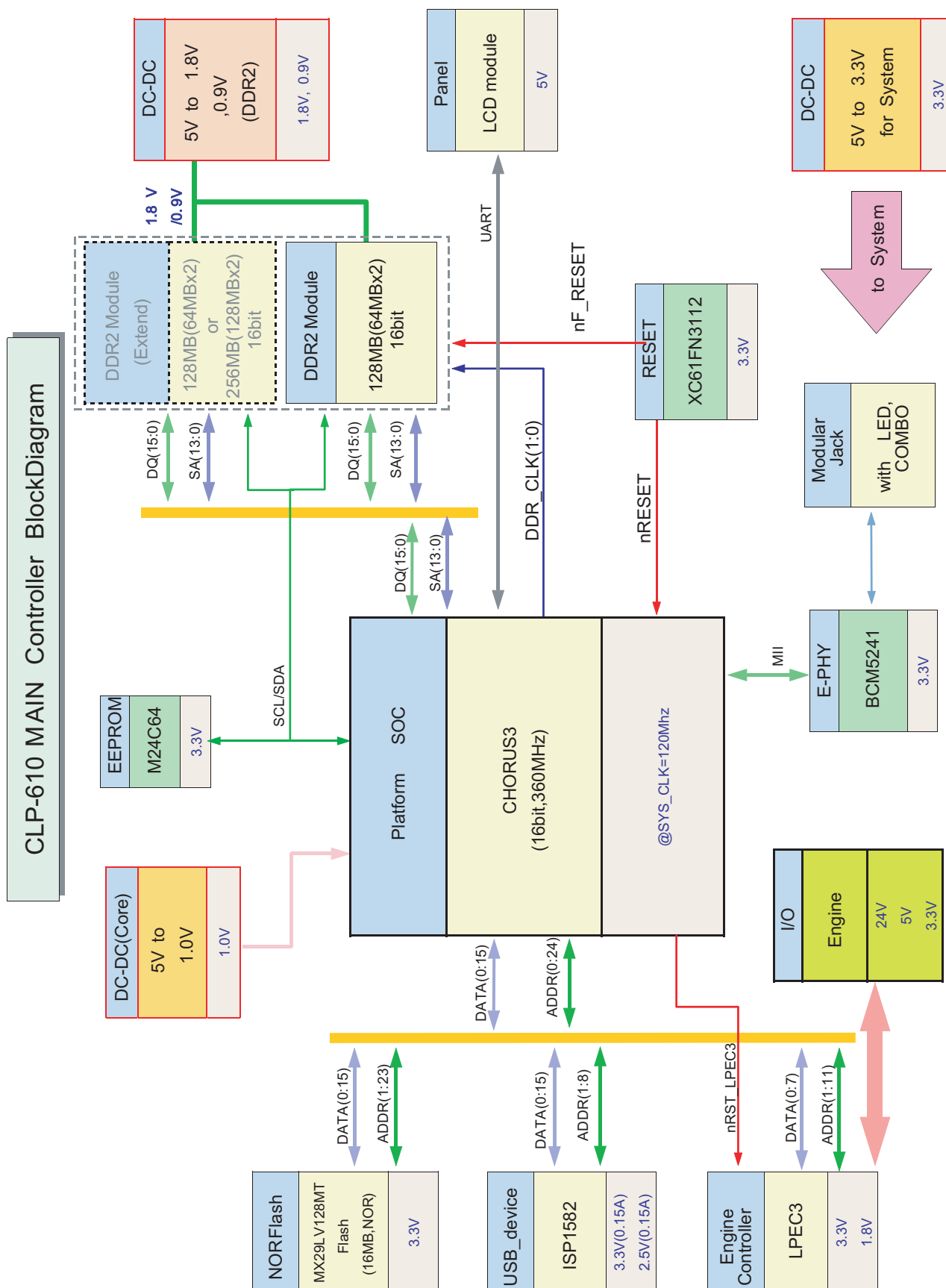| Drawer#	SEC_Code	Description	QT'y	Service	Remark
5.15-0	JC96-04503A	ELA HOU-UNIT-CASSETTE	1	SA	
5.15-1	JC97-02844A	MEA-UNIT_HOLDER PAD	1	SA	
5.15-2	JC61-01220C	FRAME-M_CASSETTE	1	SA	
5.15-3	JC61-01227A	GUIDE-M-PAPER SIZE	1	SA	
5.15-4	JC61-01223A	FRACKET-P-EXTENTION	1	SA	
5.15-5	JC61-01224C	GUIDE-M_EXTENSION CST	1	SA	
5.15-6	JC64-00190B	KNOB-M_REAR	1	SA	
5.15-7	JC61-00414A	SPRING ETC-GUIDE PAPER	2	SA	
5.15-8	JC61-00267B	GUIDE-M-LOCK A	1	SA	
5.15-9	JC61-01226B	GUIDEM_REAR	1	SA	
5.15-10	JC61-00751A	GUIDE-P-REAR PAPER CST	1	SA	
5.15-11	JC72-41210A	PMO-LOCKER PLATE	1	SA	
5.15-12	JC61-70531A	SPRING ETC-LOCKER_PLATE	1	SA	
5.15-13	JC61-01245A	PLATE-P-KNOCK UP	1	SA	
5.15-14	JC61-00455A	SPRING ETC-PLATE K/UP	1	SA	
5.15-15	JC73-00141A	RPR-PAD CASSETTE	1	SA	
5.15-16	JC61-70911A	SPRING ETC-EXIT ROLL FD	1	SA	
5.15-17	JC61-01228A	HOLDER-M-PAD_HOUSING	1	SA	
5.15-18	JC63-01206A	GROUND-CASSETTE	1	SA	
5.15-19	JC66-40003A	GEAR-PINION	1	SA	
5.15-20	JC67-01222A	GUIDE-P-SIDE_L	1	SA	
5.15-21	JC67-00037A	CAP-M-GUIDE SIDE_L	1	SA	
5.15-22	JC61-01244A	GUIDE-P-SIDE_R	1	SA	
5.15-23	JC61-01225B	GUIDE-M_SIDE LOCK	1	SA	
5.15-24	JC66-01409A	LEVER-INDICATOR_SCF	1	SA	
5.15-25	JC68-01552A	LABEL¢Á-CASSETTE	1	SNA	
5.15-26	JC64-00268A	SHUTTER-PATH	1	SA	
5.15-27	JC61-01724A	GUIDE-PAPER	1	SA	
5.15-28	JC63-01306A	COVER_HANDLE	1	SA	
5.15-29	6002-000440	SCREW-TAPPING	8	SA	

6. System Diagram

6.1 Block Diagram

6.1.1 24ppm Main Controller Block Diagram(CLP-660)

6.1.2 20ppm Main Controller Block Diagram(CLP-610)

CLP-610 MAIN Controller BlockDiagram

DC-DC
5V to 1.8V ,0.9V (DDR2)
1.8V, 0.9V

Panel
LCD module
5V

DC-DC
5V to 3.3V for System
3.3V

to System

1.8 V /0.9V

DDR2 Module (Extend)
128MB(64MBx2) or 256MB(128MBx2) 16bit

DDR2 Module
128MB(64MBx2) 16bit

UART

nF_RESET

RESET
XC61FN3112
3.3V

Modular Jack
with LED, COMBO

DQ(15:0) SA(13:0)

DQ(15:0) SA(13:0)

DDR_CLK(1:0)

nRESET

DQ(15:0) SA(13:0)

E-PHY
BCM5241
3.3V

MII

SCL/SDA

EEPROM
M24C64
3.3V

Platform SOC

CHORUS3 (16bit,360MHz)

@SYS_CLK=120Mhz

DC-DC(Core)
5V to 1.0V
1.0V

I/O
Engine
24V 5V 3.3V

DATA(0:15) ADDR(0:24)

nRST LPEC3

DATA(0:15) ADDR(1:23)

DATA(0:15) ADDR(1:8)

DATA(0:7) ADDR(1:11)

NORFlash
MX29LV128MT Flash (16MB,NOR)
3.3V

USB_device
ISP1582
3.3V(0.15A) 2.5V(0.15A)

Engine Controller
LPEC3
3.3V 1.8V

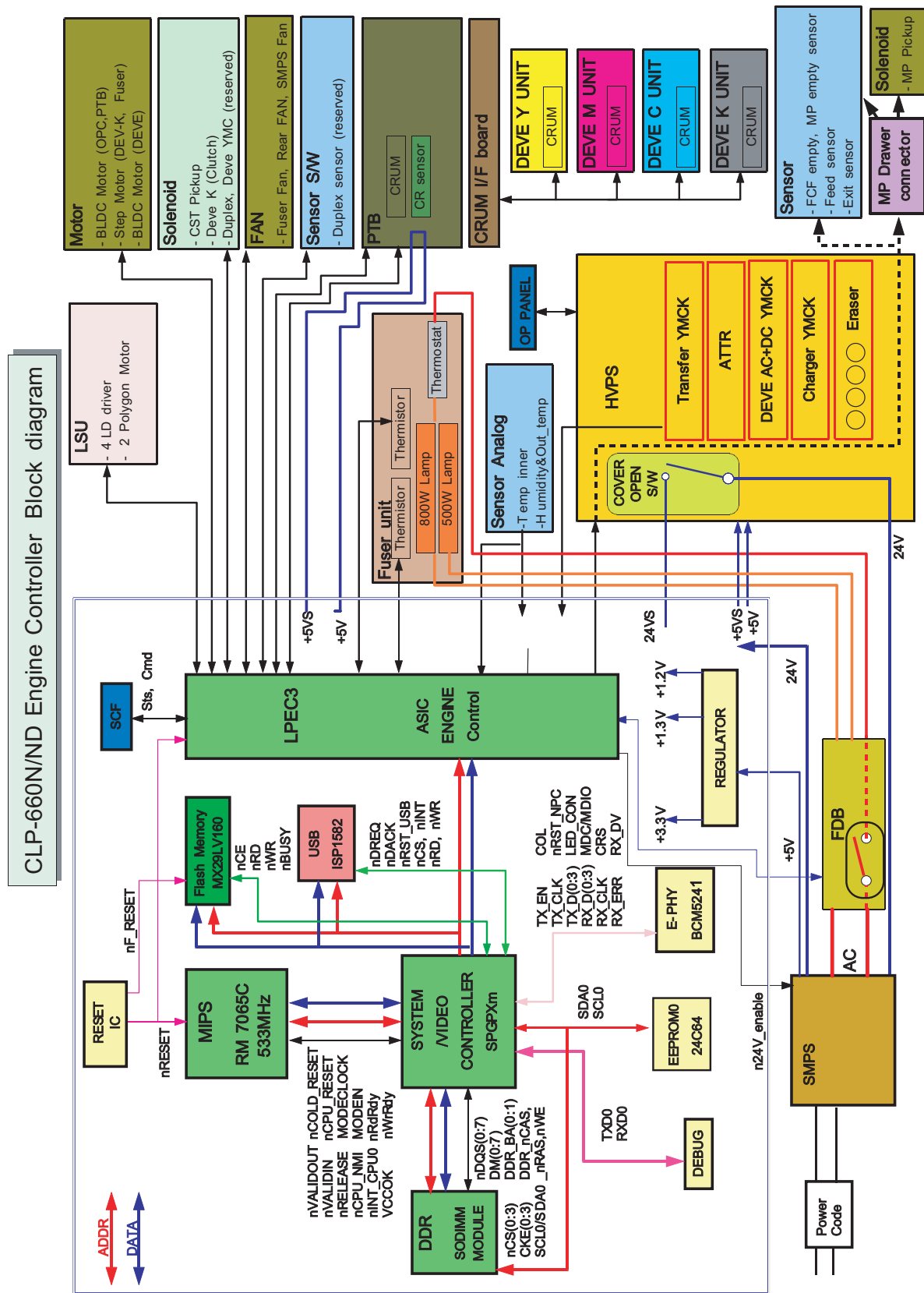## 6.1.3 CLP-610N-610ND Engine Controller Block Diagram
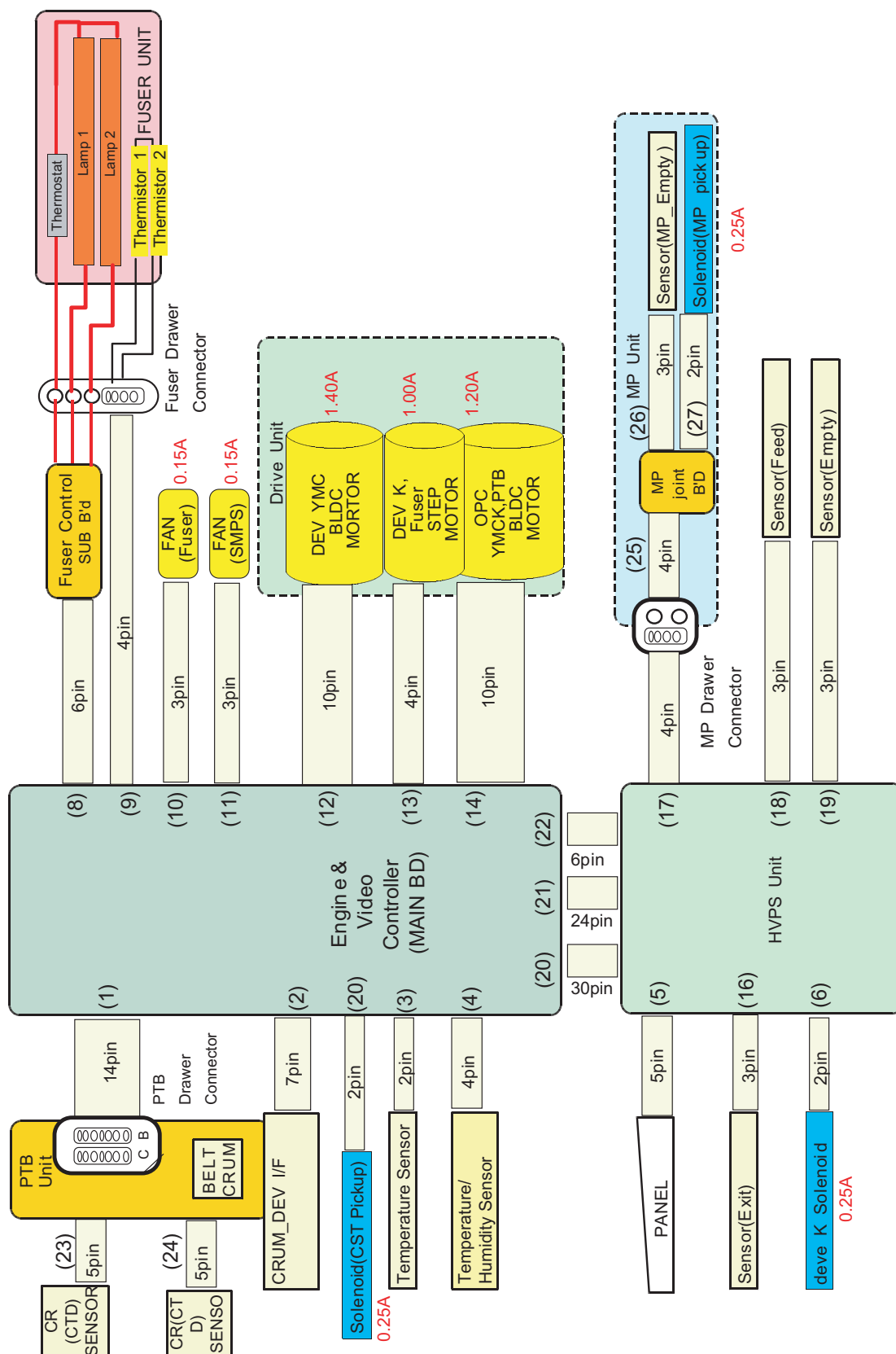

CLP-610N/ND Engine Controller Block diagram
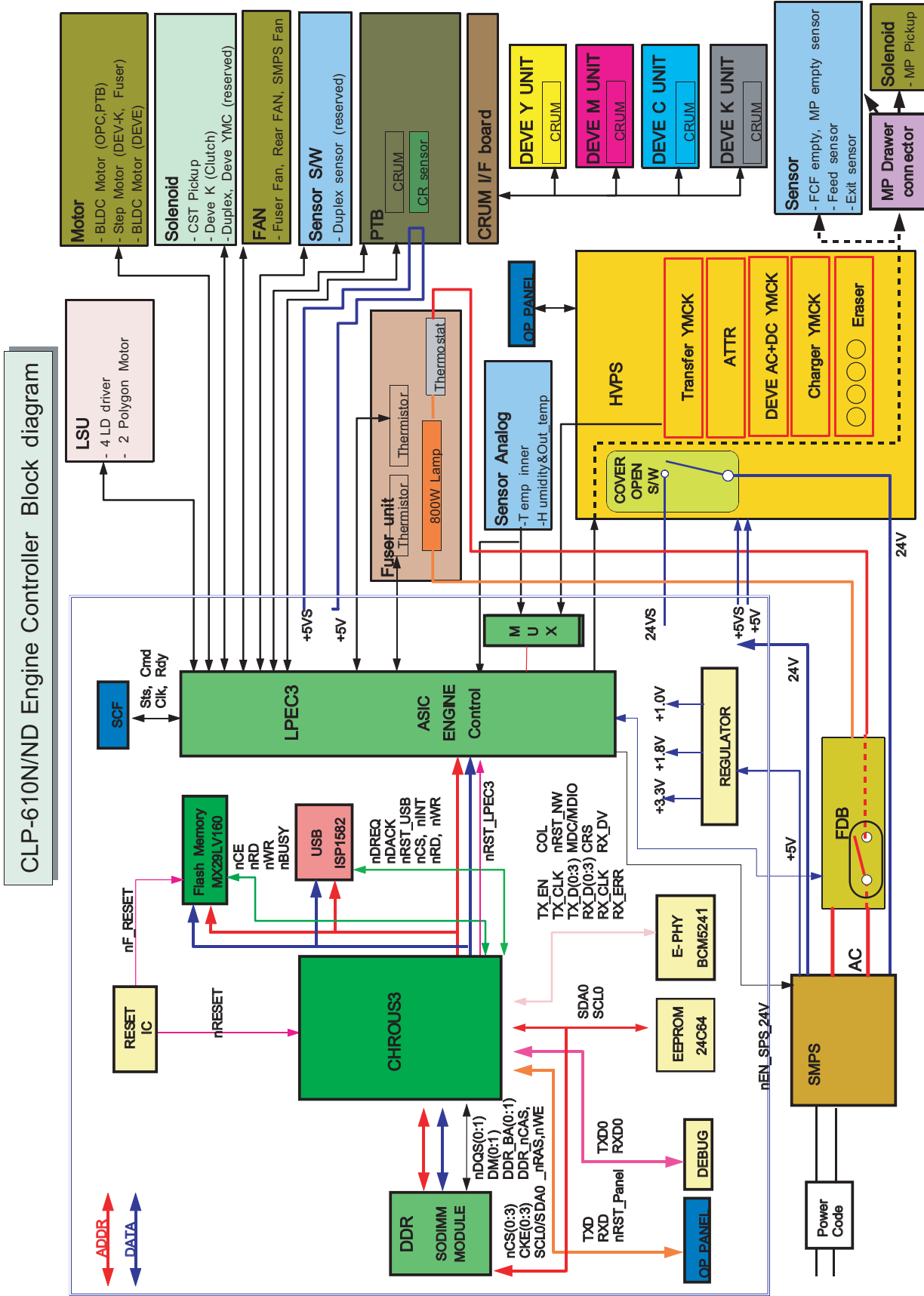
6.1.4 CLP-660N-660ND Engine Controller Block Diagram

6.2 Connection Diagram

6.2.1 Connection Diagram(1)

Connection Diagram(2)

Fuser Unit

LSU

3pin AC

18pin 2R

16pin 2R

10pin 2R

(24)

(25)

(27)

6pin 1R

Engine &
Video
Controller
(MAIN BD)

Fuser 2 Lamp Board

(2)

(22)

(23)

(26)

28pin 2R

30pin 1R

24pin 1R

6pin 1R

2pin AC

SMPS

HVPS

2pin AC

INLET

Connection Diagram(3)

Dali Connection Diagram

Revision 0.0

Dali
Main PBA

Dali Hardware Team
R&D Group 3
Digital Printing Division
Samsung Electronics
2006.DEC.14
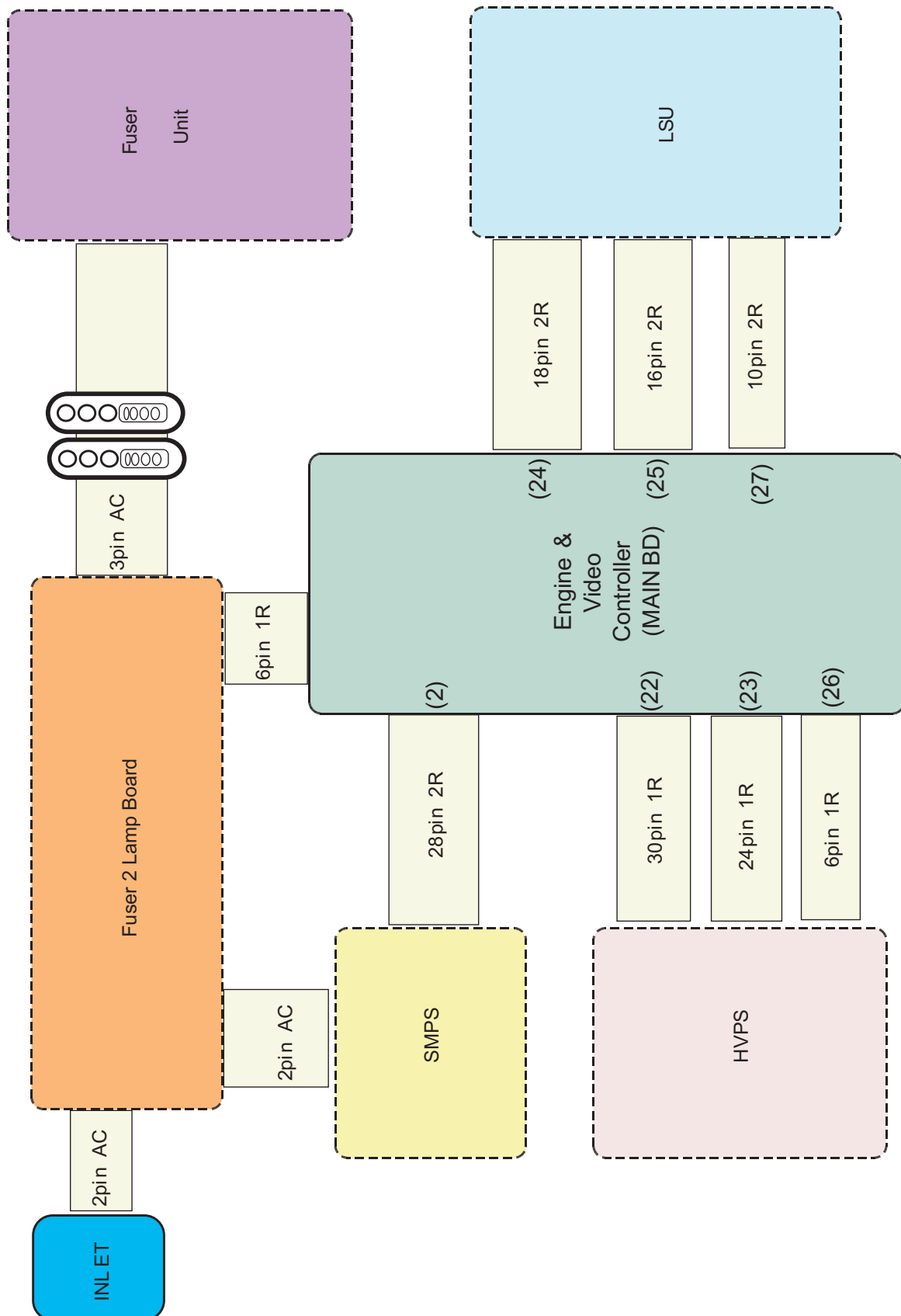
7. Reference Information

This chapter contains the tools list, list of abbreviations used in this manual, and a guide to the location space required when installing the printer. A definition of tests pages and Wireless Network information definition is also included.

7.1 Tools for Troubleshooting

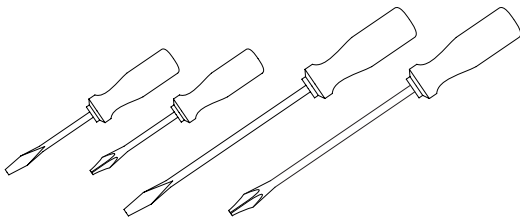The following tools are recommended safe and easy troubleshooting as described in this service manual.

· **DVM(Digital Volt Meter)**
  Standard : Indicates more than 3 digits.
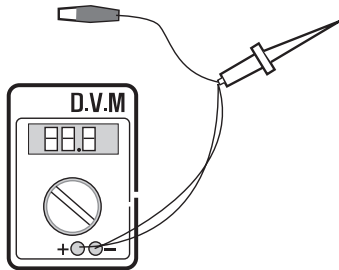
· **Driver**
  Standard : "-" type, "+" type (M3 long, M3 short, M2 long, M2 short).

· **Tweezers**
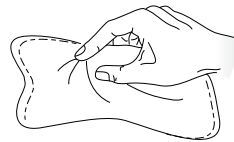 Standard : For general home use, small type.

· **Cotton Swab**
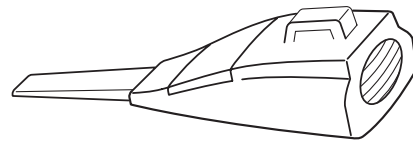 Standard : For general home use, for medical service.

· **Cleaning Equipments**
  Standard : An IPA(Isopropyl Alcohol)dry wipe tissue or a gentle neutral detergent and lint-free cloth.
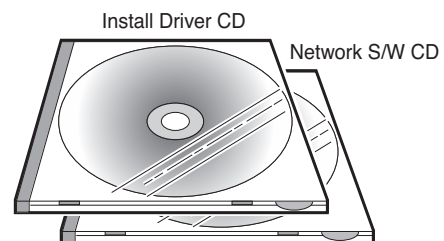
· **Vacuum Cleaner**

· **Brush**

· **Software (Driver) installation CD ROM**

Install Driver CD

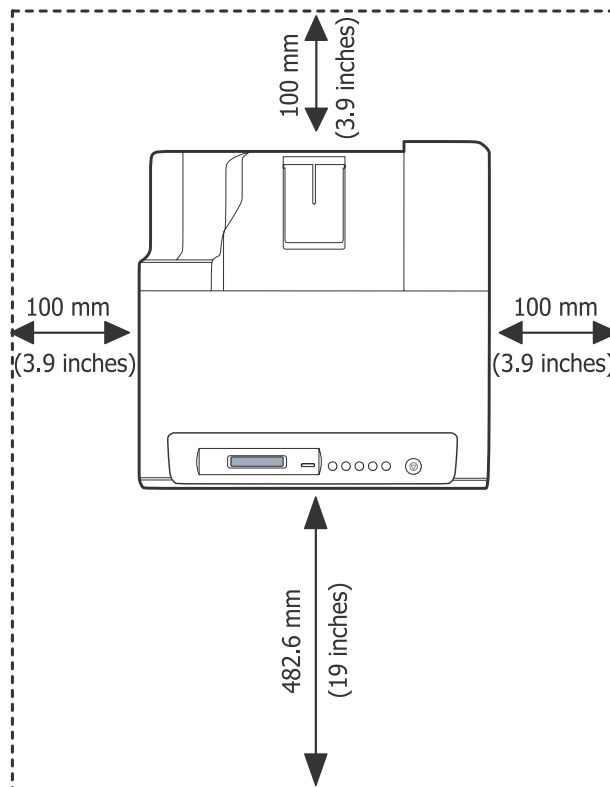Network S/W CD

7.2 Acronyms and Abbreviations

The table below explains the abbreviations and acronyms used in this service manual. Where abbreviations or acronyms are used in the text please refer to this table.

ADC	Analog-to-Digital-Conversion		EPP	Enhanced Parallel Port
AP	Access Point		F/W	Firmware
AC	Alternating Current		FCF/FCT	First Cassette Feeder/First Cassette Tray
ASIC Circuit	Application Specific Integrated		FISO	Front-In, Side-Out
ASSY	Assembly		FPOT	First Print out Time
BIOS	Basic Input Output System		GDI	Windows Graphic Device Interface
BLDC Motor	Brushless DC Motor		GIF	Graphic Interchange Format
CLBP	Color Laser Beam Printer		GND	Ground
CMOS	Complementary Metal Oxide Semiconductor		HBP	Host Based Printing
CMYK	Cyan, Magenta, Yellow, Black		HDD	Hard Disk Drive
CN	Connector		HTML	Hyper Text Transfer Protocol
CON	Connector		HV	High Voltage
CPU	Central Processing Unit		HVPS	High Voltage Power Supply
CTD Sensor	Color Toner Density Sensor		I/F	Interface
dB	Decibel		I/O	Input and Output
dBA	A-Weighted decibel		lb	Pound(s)
dBm	Decibel milliwatt		IC	Integrated Circuit
DC	Direct Current		ICC	International Color Consortium
DCU	Diagnostic Control Unit		IDE	Intelligent Drive Electronics or Integrated Drive Electronics
DIMM	Dual In-line Memory Module		IEEE	Institute of Electrical and Electronics Engineers. Inc
DPI	Dot Per Inch			
DRAM	Dynamic Random Access Memory		IOT	Image Output Terminal (Color printer, Copier)
DVM	Digital Voltmeter		IPA	Isopropy Alcohol
ECP	Enhanced Capability Port		IPC	Inter Process CommunicationEPP Enhanced parallel Port
ECU	Engine Control Unit			
EEPROM	Electronically Erasable Programmable Read Only Memory		IPM	Images Per Minute
			ITB	Image Transfer Belt
EMI	Electro Magnetic Interference		LAN	local area network
EP	Electro photographic		LBP	Laser Beam Printer

LCD	Liquid Crystal Display	RCP	Remote Control Panel
LED	Light Emitting Diode	ROM	Read Only Memory
LSU	Laser Scanning Unit	SCF/SCT	Second Cassette Feeder/Second Cassette Tray
MB	Megabyte	SMPS	Switching Mode Power Supply
MHz	Megahertz	SPGP	Samsung Printer Graphic Processor
MPBF	Mean Prints Between Failure	SPL	Samsung Printer Language
MPF/MPT	Multi Purpose Feeder/Multi Purpose Tray	SPL-C	Samsung Printer Language-Color
NIC	Network Interface Card	Spool	Simultaneous Peripheral Operation Online
NPC	Network Printer Card	SRS	Software Requirment Specification
NVRAM	Nonvolatile Random Access Memory	SURF	Surface Rapid Fusing
OPC	Organic Photo Conductor	SW	Switch
PBA	Printed Board Assembly	sync	Synchronous or Synchronization
PCL	Printer Command Language , Printer Control Language	T1	ITB
PCI	Peripheral Component Interconnect by Intel 1992/6/22, is a local bus standard developed by Intel and introduced in April, 1993 : A60, B60 Pins	T2	Transfer Roller
		TRC	Toner Reproduction Curve
		PnP	Universal Plug and Play
PCL5Ce	Printer Command Language 5Ce-Color	U.I.	User Interface
PCL6	Printer Command Language 6	URL	Uniform Resource Locator
PDF	Portable Document Format	USB	Universal Serial Bus
PDL	Page Description Language	VCCI	Voluntary Control Council for Interference Information Technology Equipment
Ping	Packet internet or Inter-Network Groper	WECA Alliance	Wireless Ethernet Compatibility
PPD	Postscript Printer Discription	Wi-Fi	Wireless Fidelity
PPM	Page Per Minute		
PS	Post Script		
PS3	Post Script Level3		
PTL	Pre-Transfer Lamp		
PTB	Paper-Transfer Belt		
PWM	Pulse Width Moduration		
Q'ty	Quantity		
RAM	Random Access Memory		

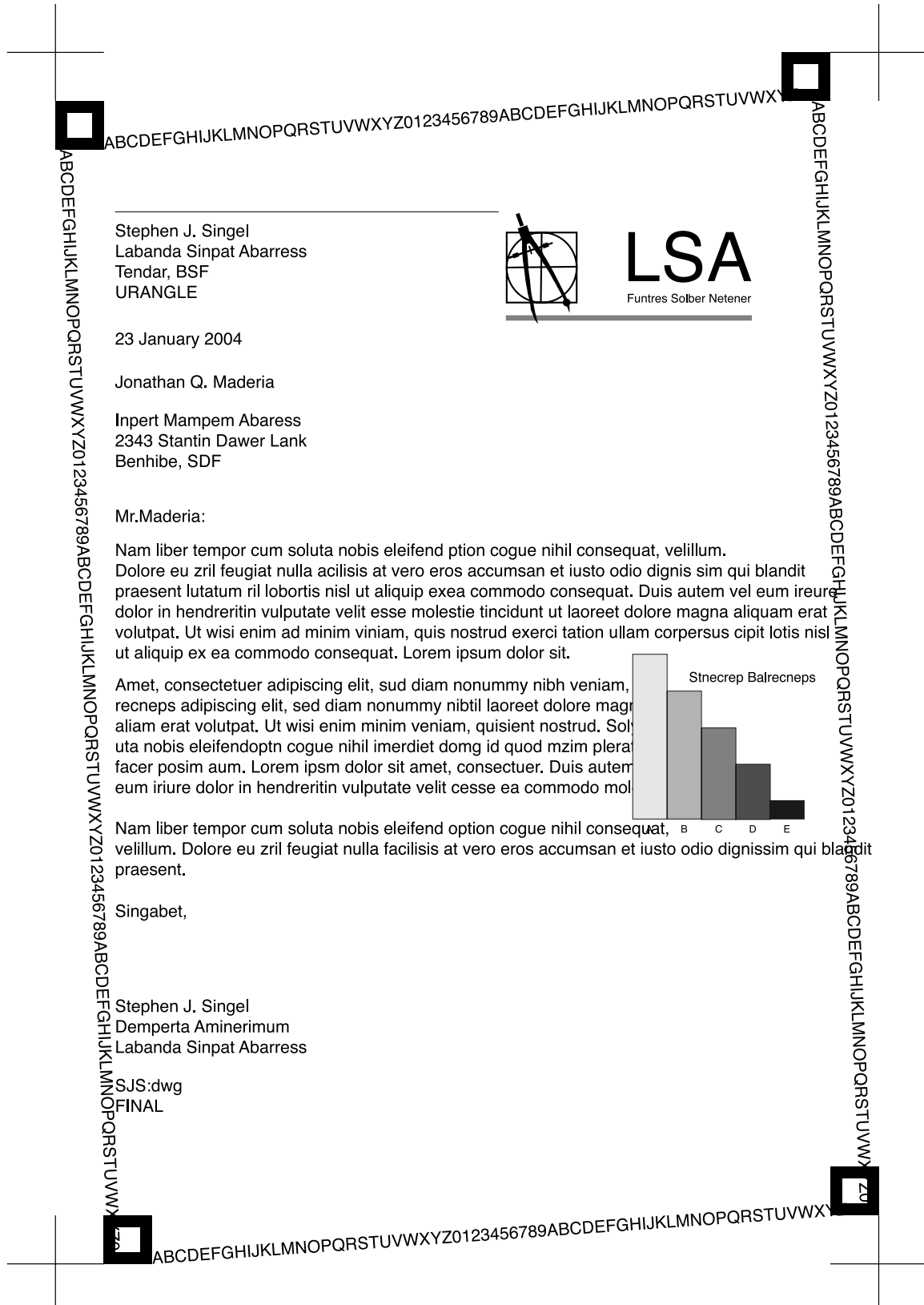# 7.3 Select a location for the printer

• Leave enough room to open the printer trays, covers, and allow for proper ventilation. (see diagram below)

• Provide the proper environment :
   - A firm, level surface
   - Away from the direct airflow of air conditioners, heaters, or ventilators
   - Free of extreme fluctuations of temperature, sunlight, or humidity
   - Clean, dry, and free of dust

7.4 A4 ISO 19752 Standard Pattern

This test page is reproduced at 70% of the normal A4 size

ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789ABCDEFGHIJKLMNOPQRSTUVWXY

Stephen J. Singel
Labanda Sinpat Abarress
Tendar, BSF
URANGLE

LSA
Funtres Solber Netener

23 January 2004

Jonathan Q. Maderia

Inpert Mampem Abaress
2343 Stantin Dawer Lank
Benhibe, SDF

Mr.Maderia:

Nam liber tempor cum soluta nobis eleifend ption cogue nihil consequat, velillum.
Dolore eu zril feugiat nulla acilisis at vero eros accumsan et iusto odio dignis sim qui blandit
praesent lutatum ril lobortis nisl ut aliquip exea commodo consequat. Duis autem vel eum ireure
dolor in hendreritin vulputate velit esse molestie tincidunt ut laoreet dolore magna aliquam erat
volutpat. Ut wisi enim ad minim viniam, quis nostrud exerci tation ullam corpersus cipit lotis nisl
ut aliquip ex ea commodo consequat. Lorem ipsum dolor sit.

Amet, consectetuer adipiscing elit, sud diam nonummy nibh veniam,
recneps adipiscing elit, sed diam nonummy nibtil laoreet dolore magn
aliam erat volutpat. Ut wisi enim minim veniam, quisient nostrud. Soly
uta nobis eleifendoptn cogue nihil imerdiet domg id quod mzim plera
facer posim aum. Lorem ipsm dolor sit amet, consectuer. Duis autem
eum iriure dolor in hendreritin vulputate velit cesse ea commodo mol

Stnecrep Balrecneps

B   C   D   E

Nam liber tempor cum soluta nobis eleifend option cogue nihil consequat,
velillum. Dolore eu zril feugiat nulla facilisis at vero eros accumsan et iusto odio dignissim qui bladdit
praesent.

Singabet,

Stephen J. Singel
Demperta Aminerimum
Labanda Sinpat Abarress

SJS:dwg
FINAL

ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789ABCDEFGHIJKLMNOPQRSTUVWXY

7.5 Model List

Model Top Code	Description
CLP-610N	20PPM ENGINE,Color Laser Printer,Networt
CLP-610ND	20PPM ENGINE,Color Laser Printer,Networt,Duplex
CLP-660N	24PPM ENGINE,Color Laser Printer,Networt
CLP-660ND	24PPM ENGINE,Color Laser Printer,Networt,Duplex
CLP-T660A,B	PTB UNIT,50K
CLP-S660A	SCF,Second Cassette
CLP-C660A,B	UNIT DEVE-C, 4K(sales)
CLP-M660A,B	UNIT DEVE-M, 4K(sales)
CLP-Y660A,B	UNIT DEVE-Y, 4K(sales)
CLP-K660A,B	UNIT DEVE-K, 2K(sales)
CLP-MEM101	PBA SUB-RAM DIMM,512M
CLP-MEM202	PBA SUB-RAM DIMM,DDR2 DIMM_X16

7.6 Difference table(CLP-610 & CLP-660)

NO	CLP-660		CLP-610	
	SEC Code	Description	SEC Code	Description
1	JC92-01870A	Main PBA	JC92-01949A	Main PBA
2	JC44-00143A	FDB-MULTI_TRIAC V2C,CLP-660	JC44-00153A	FDB-MULTI_TRIAC V2C,CLP-610
	JC44-00142A	FDB-MULTI_TRIAC V1,CLP-660	JC44-00152A	FDB-MULTI_TRIAC V1,CLP-610
3	JC39-00667A	Fuser_Drawer_frame_3p	JJC39-00668A	Fuser_Drawer_frame_2p
4	JC92-01889A	PBA SUB-RAM DIMM,128MB	JC92-01923A	PBA-RAM DIMM,DDR2
5.	JC66-01300A	LEVER-FUSER-FRAME	JC66-01300A	LEVER-FUSER-FRAME
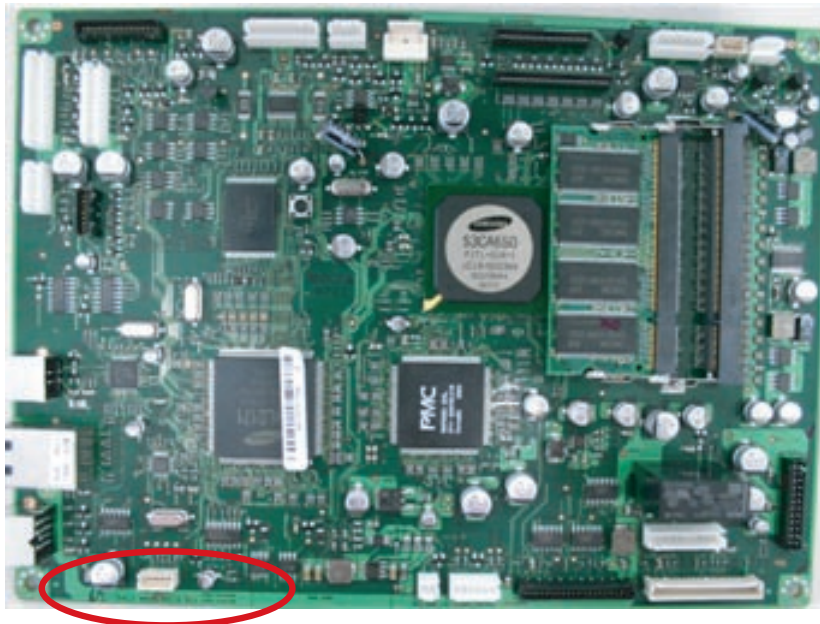
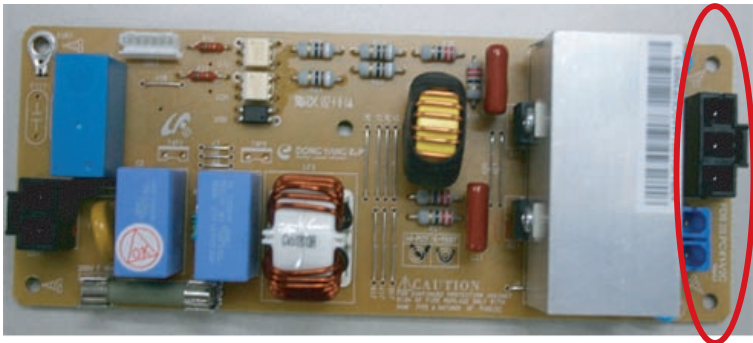| MODEL	CLP-660N,ND	CODE	JC92-01870A	Main PBA
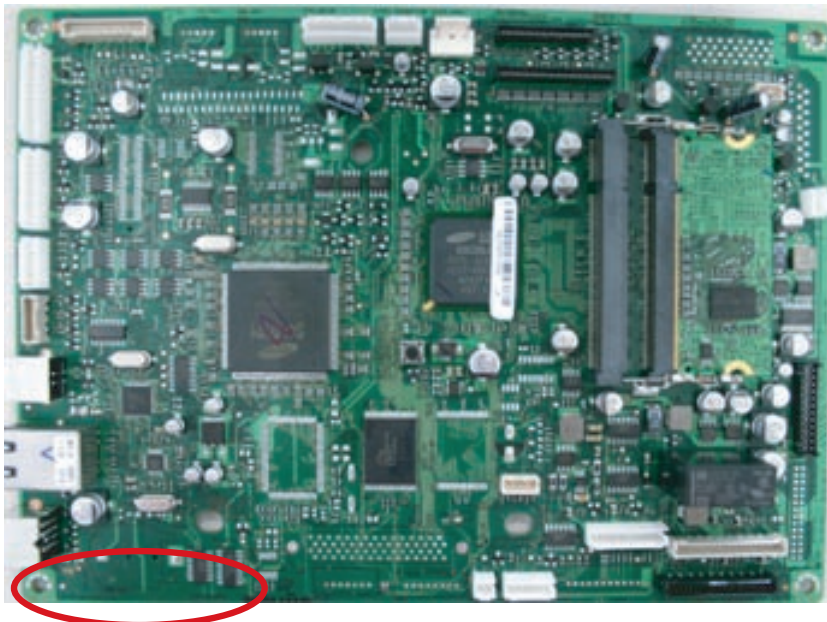
View a point

PCB, PBA Code & Chip position
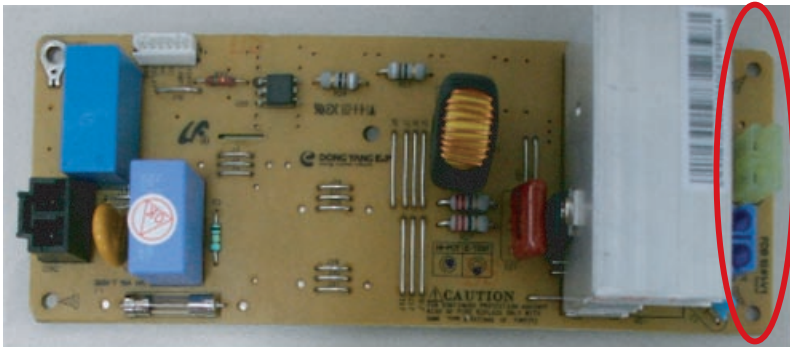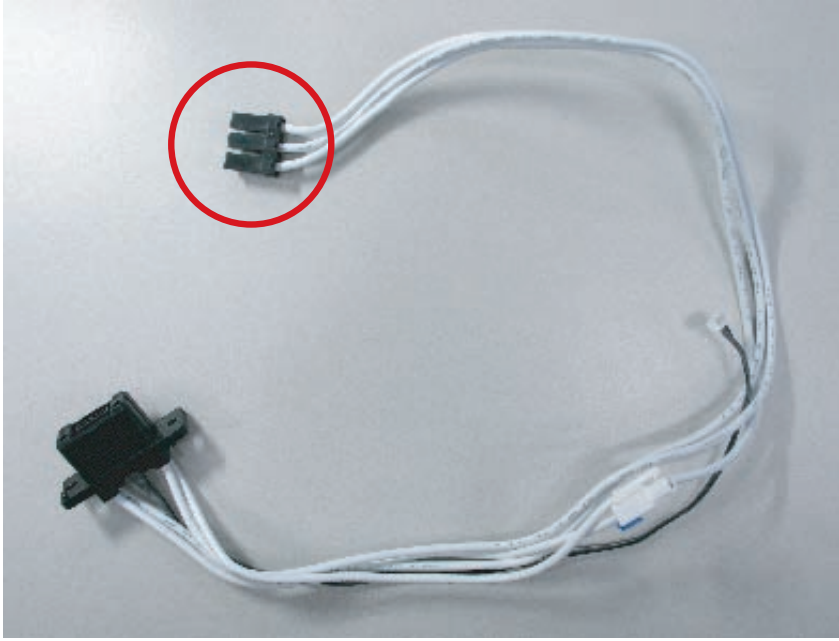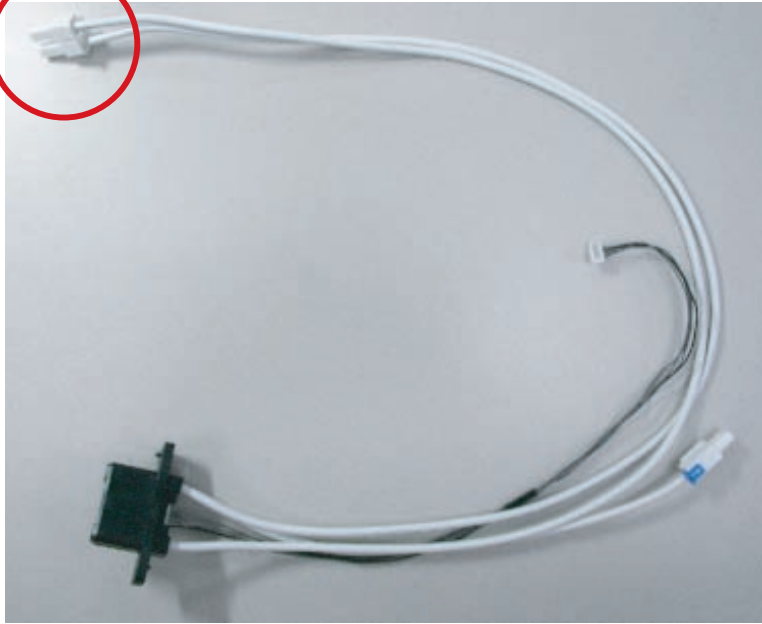
MODEL	CLP-610N,ND	CODE	JC92-01949A	Main PBA

View a point

PCB, PBA Code & Chip position

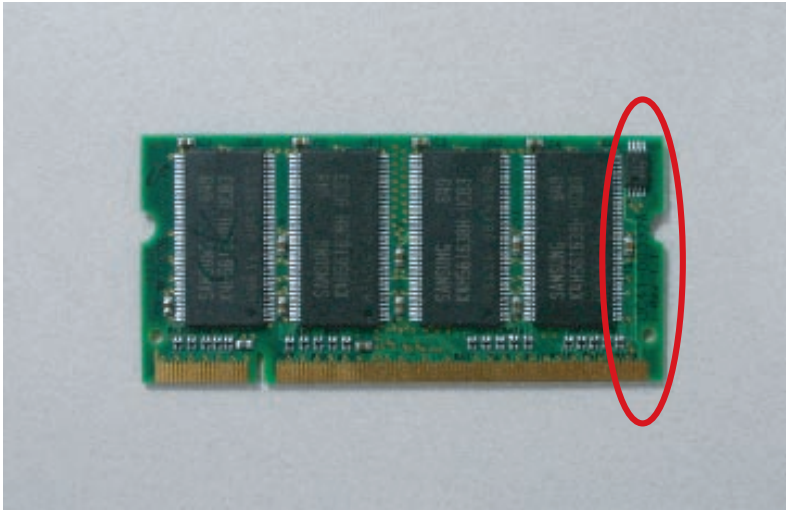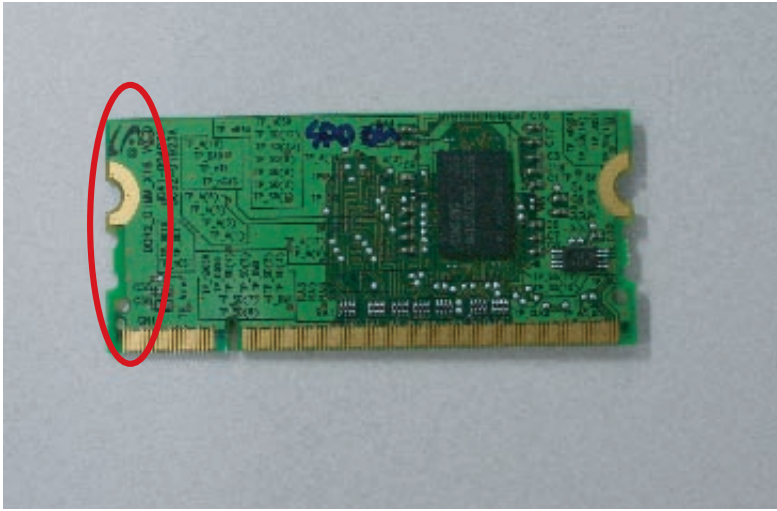|				View a point
				PCB,PBA Code & Chip position ,connector pin Qt'y
MODEL	CLP-660N,ND	CODE	JC44-00143A JC44-00142A	FDB-MULTI_TRIAC V2,CLP-660 FDB-MULTI_TRIAC V1,CLP-660

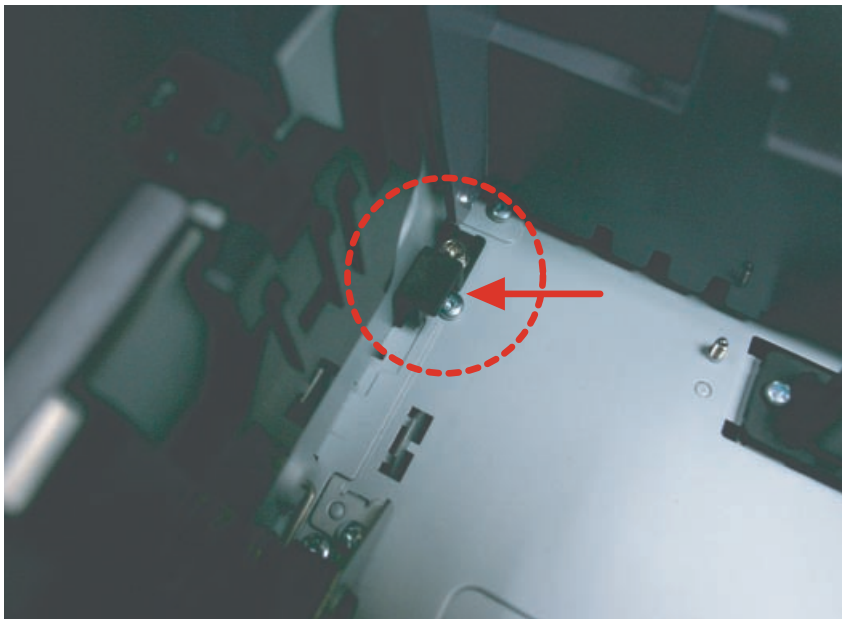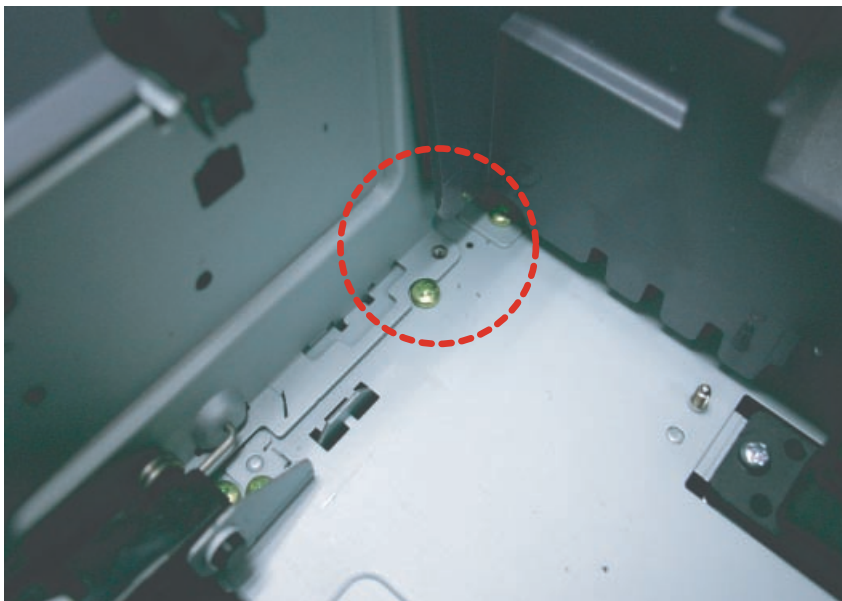|				View a point
				PCB,PBA Code & Chip position ,connector pin Qt'y
MODEL	CLP-610N,ND	CODE	JC44-00153A JC44-00152A	FDB-MULTI_TRIAC V2,CLP-610 FDB-MULTI_TRIAC V1,CLP-610

	View a point
	housing pin (3pin)
MODEL · CLP-660N,ND · CODE · JC39-00667A	Fuser_Drawer_frame_3p

	View a point
	housing pin (2pin)
MODEL · CLP-610N,ND · CODE · JC39-00668A	Fuser_Drawer_frame_2p

	View a point
	PCB,PBA Code & Chip position

MODEL	CLP-660N,ND	CODE	JC92-01889A	PBA SUB-RAM DIMM,128MB

	View a point
	PCB,PBA Code & Chip position

MODEL	CLP-610N,ND	CODE	JC92-01923A	PBA-RAM DIMM, DDR2

	View a point
	LEVER-FUSER-FRAME (Y)

MODEL	CLP-660N,ND	CODE	JC66-01300A	LEVER-FUSER-FRAME

	View a point
	LEVER-FUSER-FRAME (None)

MODEL	CLP-610N,ND	CODE	JC66-01300A	LEVER-FUSER-FRAME